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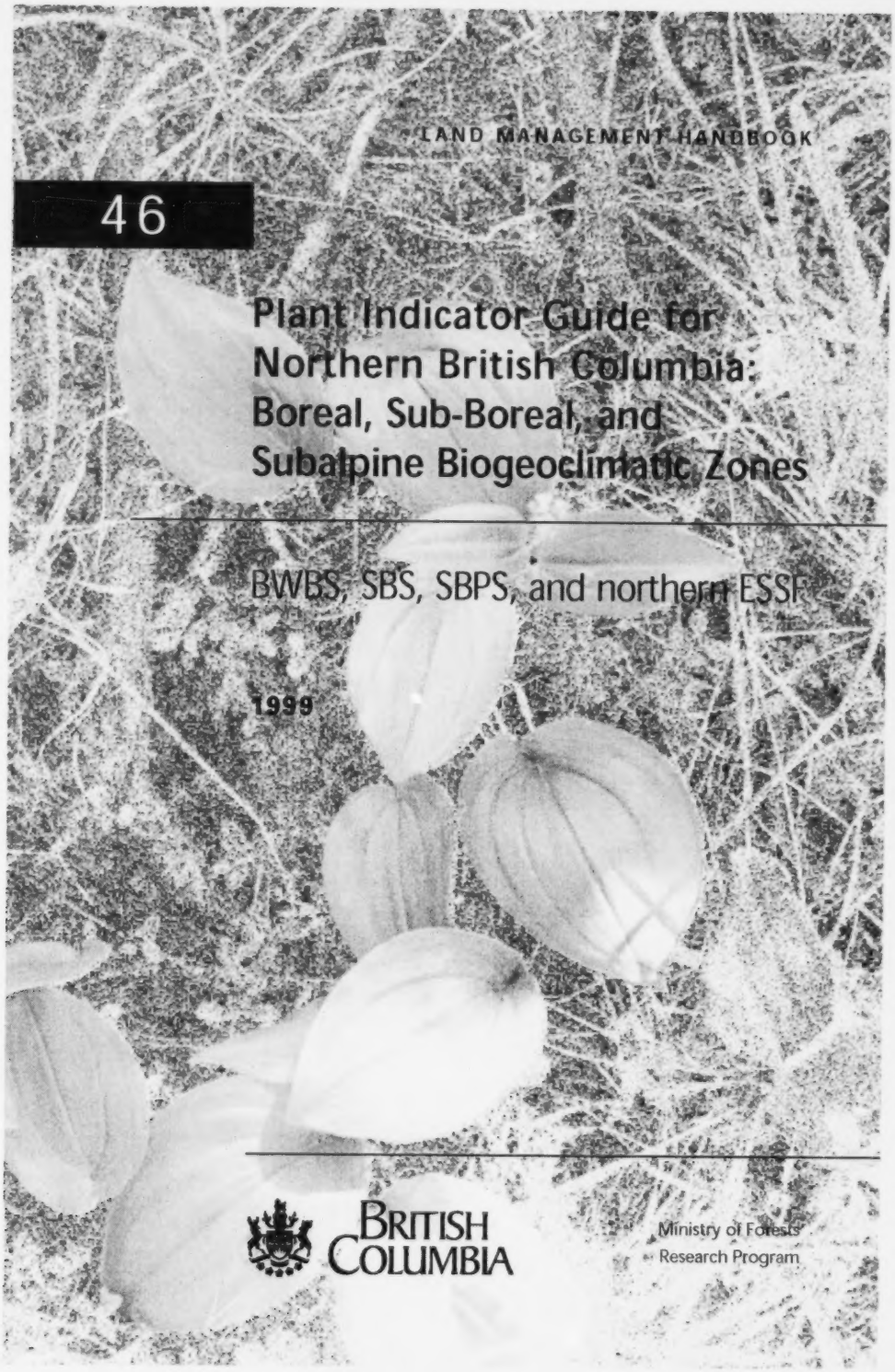
Plant Indicator Guide for Northern British Columbia: Boreal, Sub-Boreal, and Subalpine Biogeoclimatic Zones

(BWBS, SBS, SBPS, and northern ESSF)

Leisbet Beaudry, Ray Coupé,
Craig Delong, and Jim Pojar

BRITISH COLUMBIA

Ministry of Forests
Research Program


LAND MANAGEMENT HANDBOOK
46
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We must also acknowledge the contribution of some of the photos in this guide. Photo credits are listed below.

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INTRODUCTION

This guidebook shows how the distribution of common forest plants changes across British Columbia's northern interior landscape due to variations in climate, terrain, and site and soil conditions. The guide contains 215 plant species or groups of species that occur in the major biogeoclimatic zones of the Prince Rupert, Prince George, and northern Cariboo Forest Regions:

- the Boreal White and Black Spruce (BWBS) zone;
- the Sub-Boreal Spruce (SBS) zone;
- the northern portion of the Engelmann Spruce–Subalpine Fir (ESSF) zone; and
- the Sub-Boreal Pine–Spruce (SBPS) zone.

The information provided here about the indicator plants will help foresters and natural resource managers determine the moisture and nutrient regimes of different ecosystems, detect where changes between ecosystems occur, and identify site series in the biogeoclimatic ecosystem classification system. The guidebook can also be used in the review or audit of site descriptions to ensure that identification of site series is correct. It is not intended to provide information on plant identification, which is thoroughly covered in local plant identification guidebooks (Pojar et al. 1982; Roberts 1983; Vitt et al. 1988; MacKinnon et al. 1992; Johnson et al. 1995; Parish et al. 1996). Improved identification of ecosystems should result in better management prescriptions and the use of a common language with which to describe the forest.

The data were originally collected through the B.C. Ministry of Forests ecosystem classification program. These data were grouped by subzone, and then analyzed to produce a composite grid for each plant species addressed in

FIGURE 1 *The area of British Columbia covered by the guidebook.*

this guidebook. The species include indicator plants and plants with sufficient data to be able to identify their distribution. The information was analyzed and compiled by Leisbet Beaudry and reviewed by forest ecologists Ray Coupé (Cariboo Forest Region), Craig DeLong (Prince George Forest Region), and Jim Pojar (Prince Rupert Forest Region). Any errors and omissions should be attributed to Madrone Consultants Ltd., as they are responsible for the final edits.

ABOUT THE GUIDEBOOK

This guidebook presents the ecological distribution of what are, for the most part, forest-dwelling plants. The data were collected primarily from mature and old forests. Information on species distribution in young or seral forests is discussed in both the indicator values and species notes and in the section on seral information. Natural grasslands and wetlands are represented by portions of the edatopic grid, but little information is available for these ecosystems. Consequently, the guidebook includes only a few plants representative of wetland and grassland ecosystems.

Most current scientific and common names are given for the plants in this guide. These names are recommended by the Ministry of Forests (Douglas et al. 1989; Douglas et al. 1990; Douglas et al. 1991). Scientific names that have recently changed are noted in the indicator values and species notes section.

The data from which this book was derived were originally used to develop the site series classification presented in the Ministry of Forests field guides for site identification and interpretation. The field guides corresponding to the area covered here are listed in the references.

The data for the SBS, BWBS, and northern ESSF biogeoclimatic zones were grouped by moisture (relative precipitation), which is denoted by the subzone name. Subzone groupings were checked for appropriateness by comparing the distribution of selected species across the subzones. Groupings are shown in Table 1.

TABLE 1 *Subzone groupings for the BWBS, SBS, and northern ESSF zones*

	Subzone / Variant		
Precipitation regime	BWBS	SBS	northern ESSF
very dry and dry (x and d)	dk1, dk2	dk, dh, dw1, dw2, dw3	xv1, xv2
moist (m)	mw1, mw2	mc1, mc2, mc3, mh, mm, mw, mk1, mk2	mm1, mm2, mc, mv1, mv2, mv3, mv4, mk
wet and very wet (w and v)	wk1, wk2, wk3, (vk - no data)	wk1, wk2, wk3, vk	wc2, wc3, wv, wk1, wk2, vc, vv

TABLE 2 *Subzone groupings for the SBPS zone*

Precipitation regime	SBPS subzone
very dry and dry (x and d)	xc, dc
northern moist (m northern)	mc
southern moist (m southern)	mk

In the SBPS biogeoclimatic zone, the subzones were grouped by latitude and moisture (relative precipitation). Groupings are shown in Table 2.

After grouping the subzones, we calculated the frequency (ratio of number of samples/total samples) and average percent cover for all possible relative moisture and nutrient regime combinations for each species. This information was used to determine the distribution of each plant on the edatopic grid for each subzone grouping. Information from the field guides was used to evaluate the database analysis. The regional ecologists reviewed these grids, and Madrone Consultants Ltd. incorporated their comments into the final version.

Data are limited for remote subzones because of the poor accessibility of those areas. For these subzones, the assessment of plant distribution by moisture and nutrient regime is less reliable.

The range in moisture regime represented on the edatopic grid describes the variability in relative soil moisture found within each biogeoclimatic subzone. As a result, codes for moisture regime are comparable only within a subzone grouping. For example, all SBS moist (m) subzones have similar relative moisture regimes but are different from the relative moisture regime of the SBS dry (d) subzones (i.e., absolute soil moisture regime is different for each subzone grouping).

HOW TO USE THE GRIDS

Plant species occur over sites with a particular range of moisture and nutrient regimes within any one subzone. Each edatopic grid depicts the predominant moisture and nutrient regimes where a species will most likely occur in old or mature (climax or near-climax) forests. The species distribution relative to moisture and nutrients is shown by a series of shaded cells on the edatopic grid.

For any combination of moisture and nutrient regimes, a full, partially filled, or empty cell is used to represent the species distribution. A fully shaded cell indicates that a species commonly occurs on sites with that combination of moisture and nutrient regime. A partially shaded cell (half-cell or quarter-cell) indicates that the plant has a lower frequency of occurrence and/or percent cover for that combination of moisture and nutrient regime. An empty cell does not indicate that the plant is never found with that combination of moisture and nutrients, but that it rarely occurs there, and/or occurs there with very low percent cover.

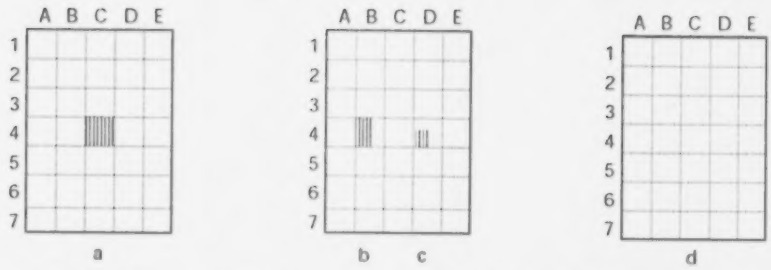


FIGURE 2 *Edatopic grids showing full (a), partially full (b, c), and empty cells (d).*

Some species do not occur in all biogeoclimatic zones. An edatopic grid with shaded cells is provided only for biogeoclimatic zones where there is adequate data on the species distribution. An empty edatopic grid is provided for biogeoclimatic zones where a species is known to occur sporadically, or where data were insufficient to describe the distribution. Blank edatopic grids (without gridlines) are provided where a species has no recorded occurrence. When a subzone grouping is not shown on an edatopic grid, either the species occurs infrequently, or the data were insufficient to determine the distribution. Where a grid location is shown for a species but the species is restricted to a particular subzone, or subzone group, it is noted in the indicator values and species notes of that species. The following terminology is used to describe species occurrence in the indicator values and species notes section:

- **not found** (no data in database, but the species is noted in the Ministry of Forests ecological field guides);
- **rare** (observed in <10 plots with low percent cover, and noted in Ministry of Forests ecological field guides); and
- **uncommon** (observed in 10–30 plots, and noted in Ministry of Forests ecological field guides).

The best indicator species are those species that are restricted to a specific range on the edatopic grid. Both presence and absence of indicator plants can be used to determine moisture regime, nutrient regime, and site series.

To identify site series, a transition between site series, or moisture and nutrient regimes, start by identifying the species in the ecosystem. For each plant species, determine if the range is restricted to a portion of the edatopic grid. Compare the range of each species of the ecosystem you are describing to determine if any overlap exists. The area of overlap helps identify the soil moisture and nutrient regime. It is possible, however, to find a species outside the moisture/nutrient range indicated on any grid, so it is important to rely on several plants and on physical site characteristics (e.g., landform, aspect, soils, slope position) to determine the moisture and nutrient regimes and site series of an ecosystem.

INDICATOR VALUES AND SPECIES NOTES

Indicator value information has been compiled from local plant identification and plant indicator field guides (Vitt et al. 1988; Klinka et al. 1989; Haeussler et al. 1990; Lavender et al. 1990; Porter 1990; Steen et al. 1990; MacKinnon et al. 1992; Johnson et al. 1995; Parish et al. 1996; Beaudry et al. 1997; Ringius and Sims 1997; Delesalle 1998), as well as from the authors' personal knowledge of each plant species.

Indicator values other than moisture and nutrients are provided for each species where applicable information is available. Where possible, indicator value is noted at the biogeoclimatic subzone and zone level. Shade tolerance information has been provided to indicate how the occurrence and abundance (percent cover) of a plant species might respond to disturbance (Klinka et al. 1989; Haeussler et al. 1990; Lavender et al. 1990). Recent common or scientific name changes are also noted.

Terminology for describing a forest's successional status corresponds to "Describing Ecosystems in the Field" and "Field Manual for Describing Terrestrial Ecosystems" (Luttmerding et al. 1990; Prov. of B.C. 1998). The three successional status classes used in this guide are: pioneer seral, young seral, or mature seral stands.

Pioneer seral is "vegetation that occupies a site after disturbance" (Luttmerding et al. 1990). Disturbance may be either natural (e.g., fire, erosion) or anthropogenic (e.g., logging, site preparation). In both cases, very little of the original plant community structure remains. In addition, the humus layer and the seed bank may be reduced or destroyed.

Young seral refers to "stands or communities that have not yet gone through a series of natural thinnings" (Luttmerding et al. 1990). The density of these stands is dependent on time since disturbance (less than 60 years), the type of disturbance, local climate, and species composition.

Mature seral stands can have diversity in species composition (both seral and climax species may be present), stand structure, and age classes. Such stands can thus be composed of both shade-tolerant and shade-intolerant species within their stand structure. Although they may not yet be dominated by climax species, mature seral stands may be as old as 140 years in the interior of British Columbia (Luttmerding et al. 1990), where many species frequently function as both seral and climax species.

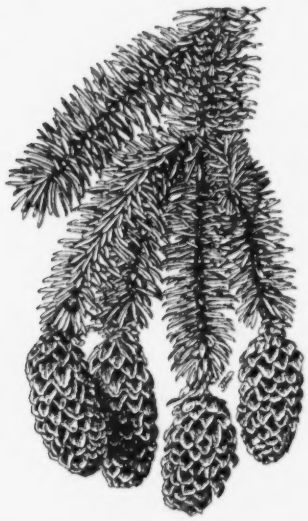
SHIFTS IN SERAL FORESTS

In younger successional stages, plant species often do not have the same distribution on the edatopic grid as at climax (or near climax). We have provided information in the indicator values and species notes section to help users determine how species distribution changes with successional status. This includes the change in abundance of a species by successional status and, where known, the change in edatopic grid location. We have also noted

shade tolerance, which affects how species presence and cover change with succession. For example, when a small opening is created by disturbance (e.g., windthrow), species that are shade-requiring will persist. If the disturbance creates a large opening, however, species that are shade-requiring will decrease and shade-intolerant species will become dominant.

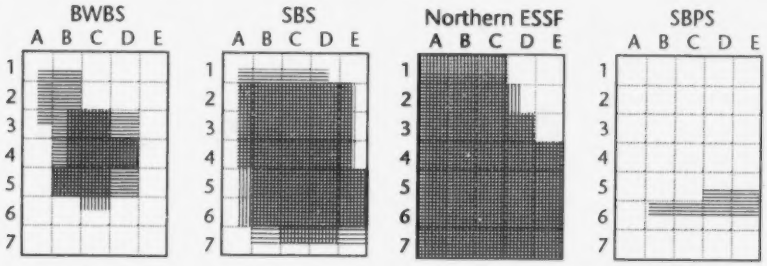
In seral stands, indicator species of old forests can be less reliable for determining moisture and nutrient regimes. However, knowing how species presence and percent cover change with increased light enables one to better predict which plants have indicative value in seral stands. This information, when known, is provided in the indicator values and species notes section.

Information on seral species complexes is available in a number of the Ministry of Forests field guides. For example, see DeLong (1988), DeLong et al. (1990), Lavender et al. (1990), Banner et al. (1993), and Steen and Coupé (1997).



Trees

Abies lasiocarpa – subalpine fir

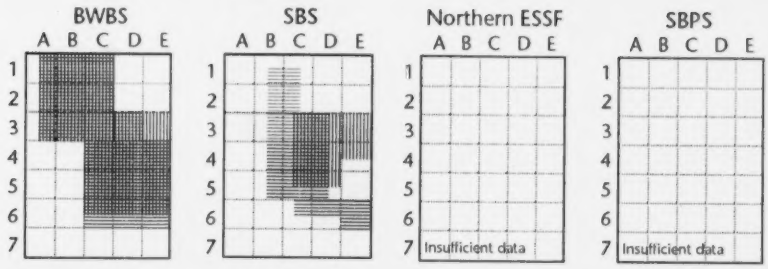


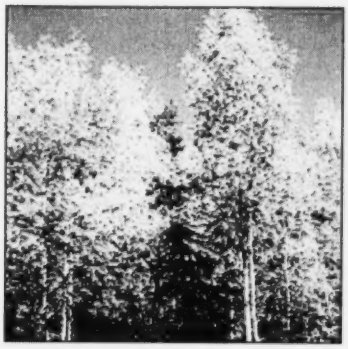
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- tolerates fluctuating groundwater levels; flood-tolerant.
- tolerant of heavy snow cover and frost.
- shade-tolerant.
- advance regeneration may persist in pioneer seral stage and form future mature canopy.
- rare in overstorey in SBSdk, SBPSmc, BWBSmw1, and mw2.
- uncommon in overstorey of SBSdw.

Betula papyrifera – paper birch



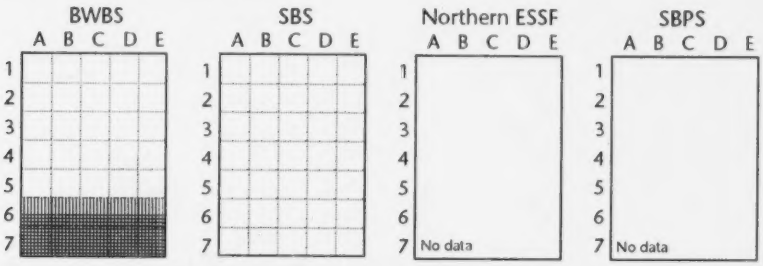


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant (to moderately shade-tolerant).
- high tolerance to frosts, floods, and poorly drained soils.
- intolerant of extremely heavy snow loads (breakage).
- associated with Douglas-fir in SBS.
- increases in abundance and may increase range on edatopic grid in pioneer seral stage.
- can form deciduous, young and mature seral forests.
- rare in SBSmc1 and mc2; rare in ESSF and SBPS.

Larix laricina – tamarack

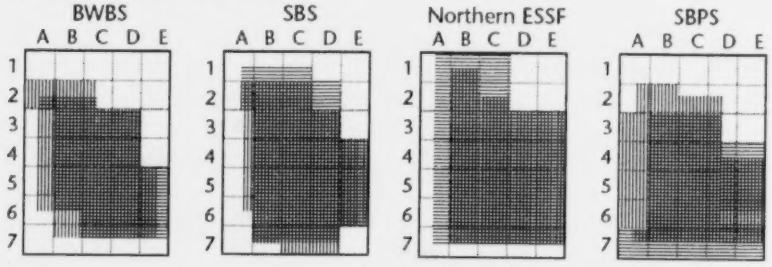


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-intolerant.
- frost- and flood-tolerant.
- associated with calcareous soils.
- richer-than-average nutrients, although it grows with poor vigour in nutrient-poor muskeg.
- rare in SBS.

Picea engelmannii – Engelmann spruce, *Picea glauca* – white spruce, and their hybrids

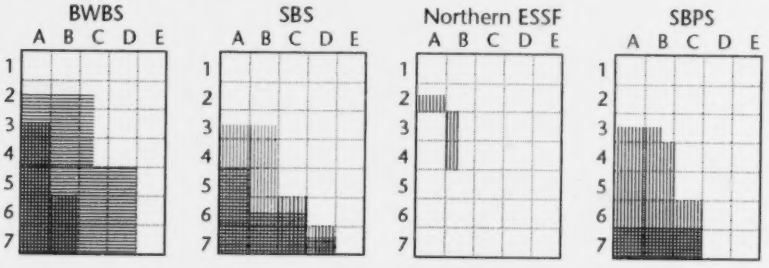


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to very shade-intolerant.
- *P. engelmannii* is tolerant of heavy snow cover.
- frost- and flood-tolerant.
- seldom in overstorey on mesic and drier sites in SBPSxc.

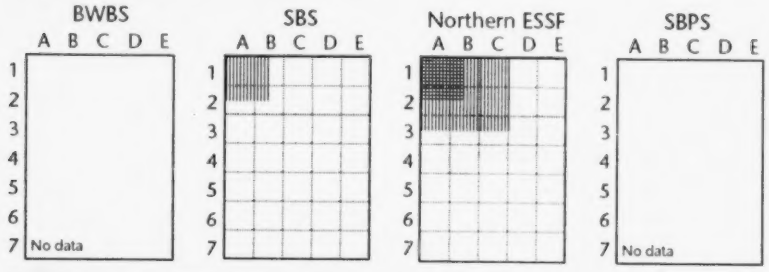
Picea mariana – black spruce



Indicator Values and Species Notes

- shade-tolerant to moderately shade-tolerant.
- associated with a restricted rooting depth, due to compact till or lacustrine soils on upland sites, and high watertables in wetlands.
- frost-tolerant.
- in the Cariboo Forest Region, when it occurs on lower slopes it indicates frost-prone sites.
- not found in SBSmm and mc1, ESSFmc, mm1, and SBPSxc; rare in SBSdw1; found only in the northern half of SBPSdc and mk.

Pinus albicaulis – whitebark pine

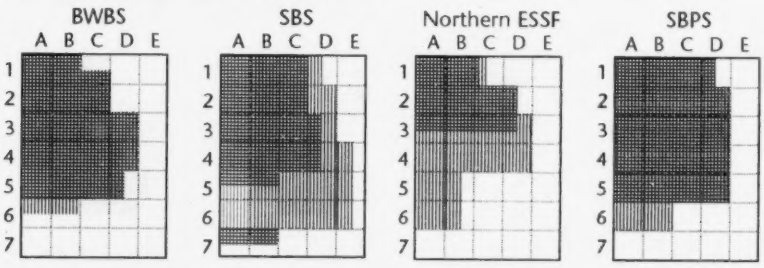


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-intolerant.
- frost-tolerant.
- in ESSFmv, it is restricted to the southern portion.
- not found in SBSmh, mm, or mw.

Pinus contorta – lodgepole pine

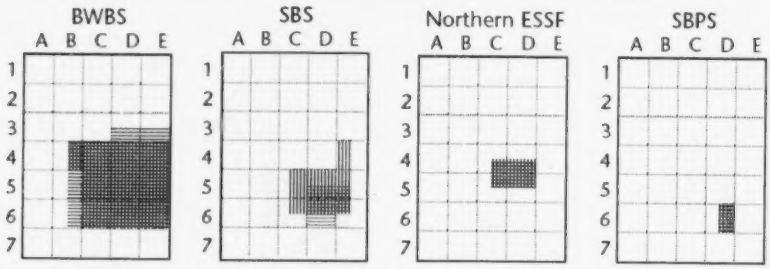


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant (in SBPS) to very shade-intolerant.
- frost-tolerant.
- not found in ESSFvc; rare in SBSmh, ESSFvv, and wv.

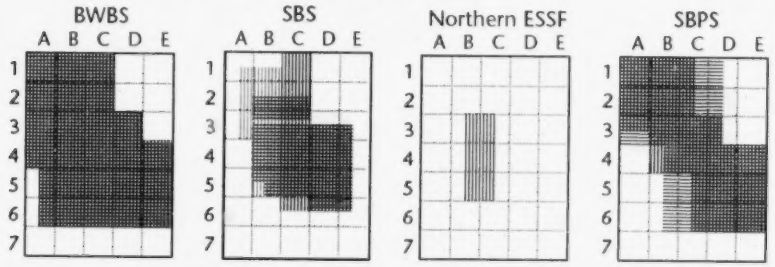
Populus balsamifera – balsam poplar, black cottonwood



Indicator Values and Species Notes

- includes both subspecies *P. balsamifera* and *P. trichocarpa*.
- shade-intolerant to very shade-intolerant.
- commonly found on moder and mull humus forms.
- associated with increased nitrogen availability.
- often found along riverbanks.
- prefers aerated water.
- very flood-tolerant.
- increases in abundance and edatopic grid location in pioneer and young seral stands; may form deciduous, mature seral forests.
- rare in SBPSmc.

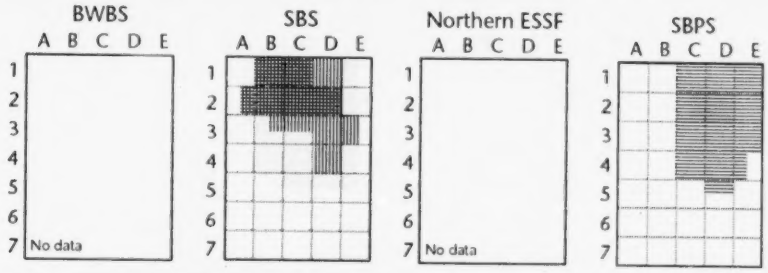
Populus tremuloides – trembling aspen



Indicator Values and Species Notes

- shade-intolerant to very shade-intolerant.
- considered a soil improver due to inputs of high levels of potassium and redistribution of nutrients (calcium, magnesium, and nitrogen) to the surface soil layer through its litter.
- can survive periods of flooding.
- high frost resistance.
- increases in abundance and edatopic range in pioneer seral stands; can form deciduous or mixedwood, young and mature seral forests.
- rare in SBSmc1, mc3, and vk.
- locally common in SBSmc2.

Pseudotsuga menziesii var. *glauca* – Douglas-fir

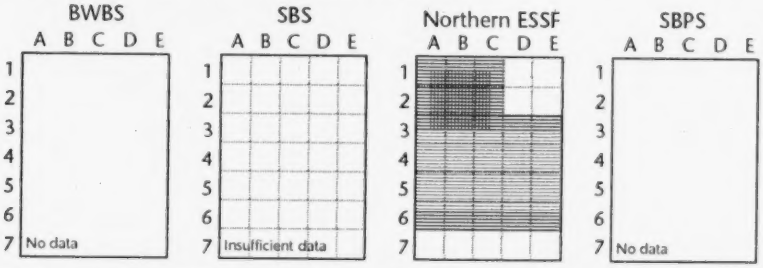


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- intolerant of frost or heavy snow cover.
- not found in SBPSmc and dc.
- rare in SBSdk, mc2, mc3, mk2, ESSFm, and w.
- uncommon in SBSwk1 and mk1.

Tsuga mertensiana – mountain hemlock



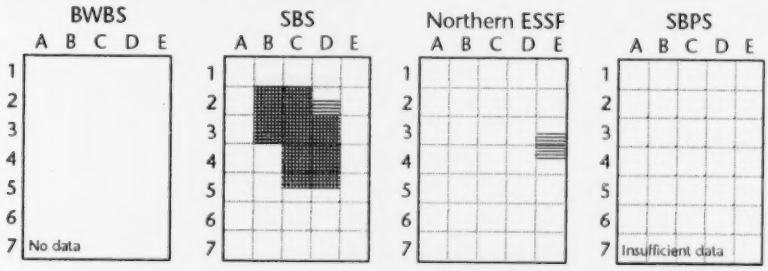
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- tolerant of heavy snow cover.
- not found in ESSFwk1, wc2, and wc3.

Shrubs

Acer glabrum – Douglas maple

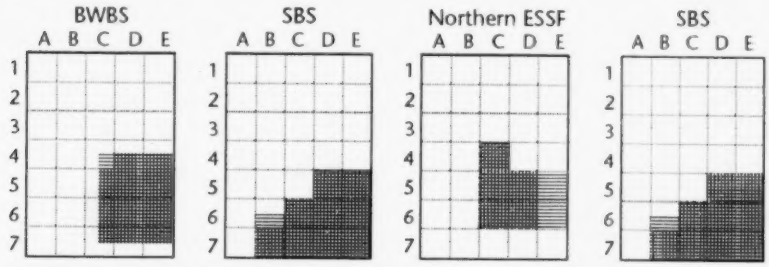


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to shade-intolerant.
- associated with Douglas-fir in SBS.
- commonly found on coarse-textured soils with good to rapid drainage.
- high frost resistance.
- persists or may increase in abundance in pioneer seral stage.
- decreases in abundance in young seral forests.
- rare in SBSmk1.

Alnus incana ssp. *tenuifolia* – mountain alder

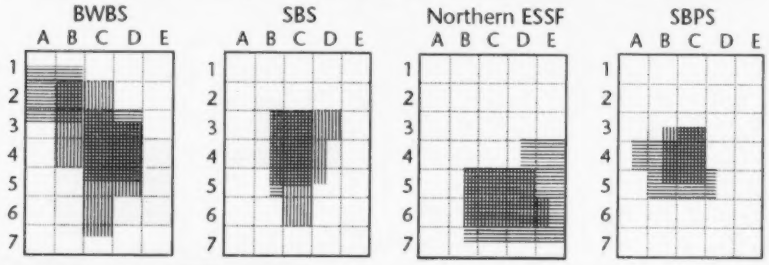


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- was *A. tenuifolia.*
- moderately shade-tolerant.
- in symbiosis with nitrogen-fixing bacteria.
- highly frost- and flood-tolerant.
- persists or may increase in abundance in pioneer and young seral forests.
- edatopic range may increase in pioneer seral stage.

Alnus viridis, ssp. *crispa* – green alder; ssp. *sinuata* – Sitka alder

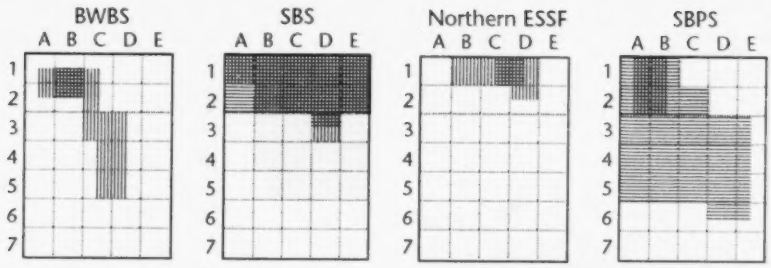


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- was *A. crispa.*
- green alder is restricted to BWBS and SWB.
- in symbiosis with nitrogen-fixing bacteria.
- shade-tolerant to shade-intolerant.
- indicates prior mineral soil exposure on the site.
- frost-tolerant.
- tolerates heavy snow loads.
- persists or increases in abundance in pioneer and young seral forests.

Amelanchier alnifolia – saskatoon

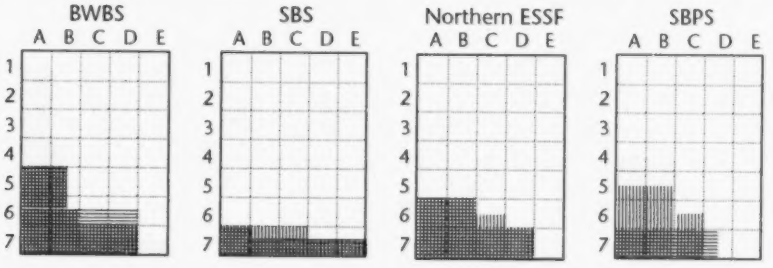


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists and may increase in pioneer seral stage and in deciduous, mature seral forests.
- rare in ESSFmv1 and SBPSmc; uncommon in SBSmc3 and mm.

Betula glandulosa – scrub birch

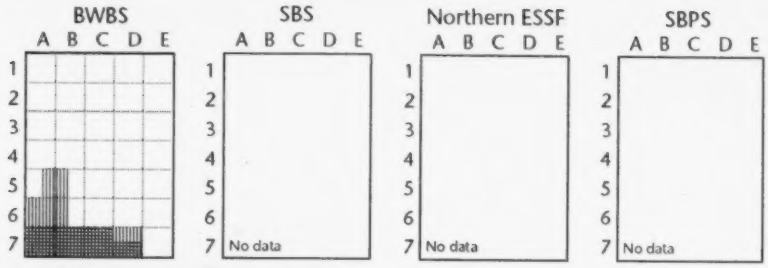


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- may indicate a frost-prone site.
- tolerant of moderately acidic soils.

Chamaedaphne calyculata – leatherleaf

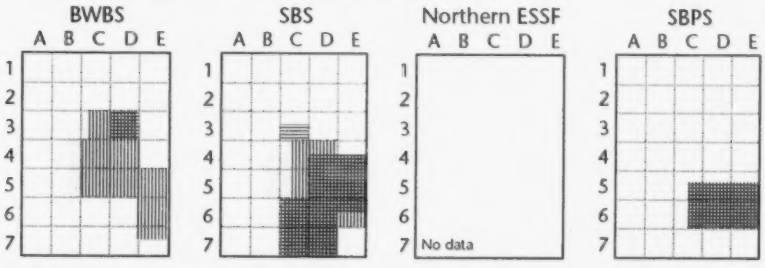


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- rare in BWBSdk1.

Cornus stolonifera – red-osier dogwood

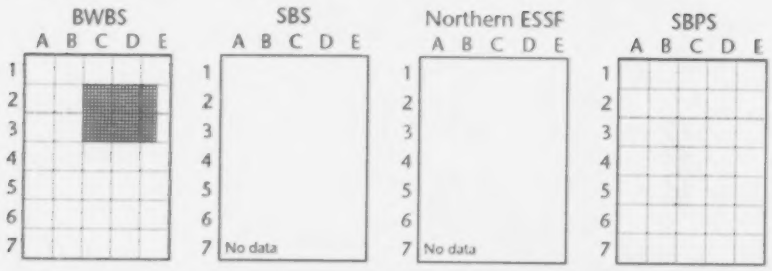


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- commonly found on moder humus forms.
- frost-tolerant; often found on frost-prone sites.
- flood-tolerant.
- tolerates fluctuating watertables.
- may increase in abundance in pioneer and young seral forests.
- persists and may also increase edatopic range in deciduous, mature seral forests.

Elaeagnus commutata – silverberry

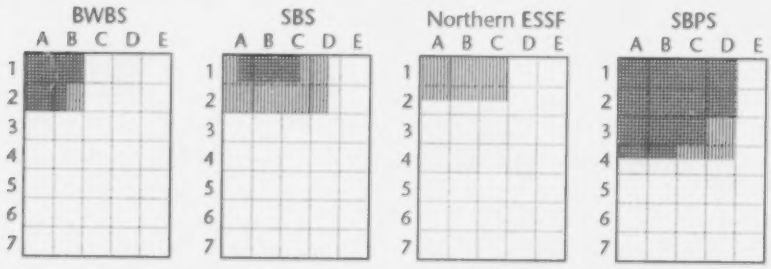


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- grows mostly on open sites.
- associated with calcareous parent materials.
- indicates disturbance or active landforms.
- increases in abundance in pioneer seral stage.
- scattered on roadsides in SBSmh.

Juniperus communis – common juniper

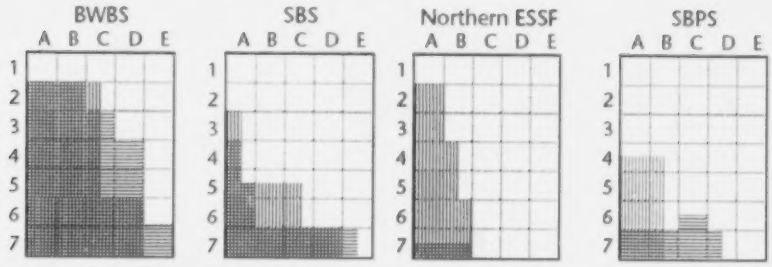


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- persists in pioneer seral stage.

Ledum groenlandicum – Labrador tea

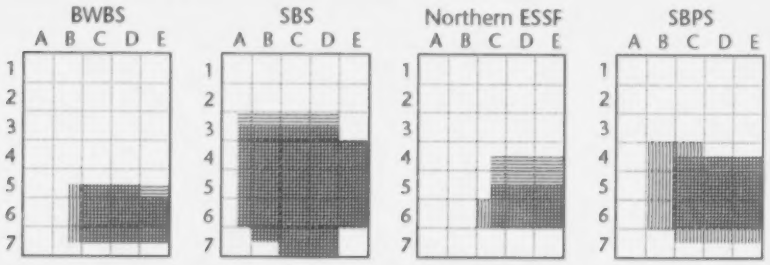


	BWBS, SBS, ESSF	SBPS
Subzone x or d		x or d
Subzone m		mc
Subzone w or v		mk

Indicator Values and Species Notes

- often rooting in decaying wood when in upland forests in SBS.
- often found on acidic soils.
- shade-intolerant to moderately shade-tolerant (in BWBS).

Lonicera involucrata – black twinberry

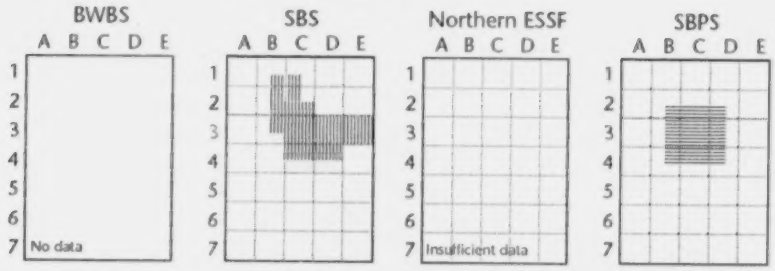


	BWBS, SBS, ESSF	SBPS
Subzone x or d		x or d
Subzone m		mc
Subzone w or v		mk

Indicator Values and Species Notes

- tolerates fluctuating groundwater levels.
- frost-tolerant.
- moderately shade-tolerant.
- persists or may increase in abundance and edatopic range in pioneer and young seral forests.

Mahonia aquifolium – tall Oregon-grape

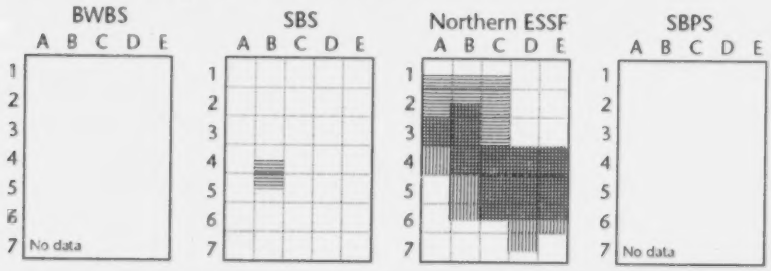


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- persists in pioneer seral stage.
- rare in SBSmc2.

Menziesia ferruginea – false azalea

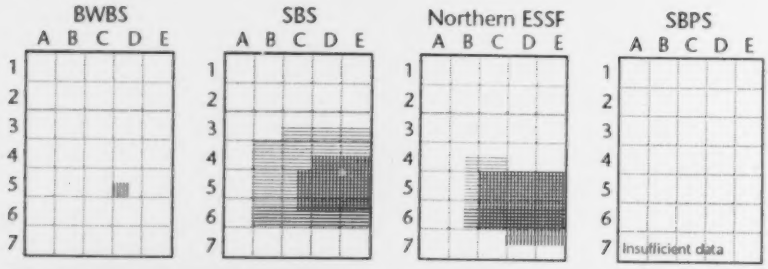


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to very shade-tolerant.
- commonly found on mor humus forms.
- associated with a humid climate (high rainfall or persistent fog).
- may increase in abundance in pioneer and young seral forests.
- rare or absent in SBSdk, dw, mh, mc1, mc3, mk, mw, and wk1; uncommon in ESSFwk1 and wc3.

Oplopanax horridus – devil's club

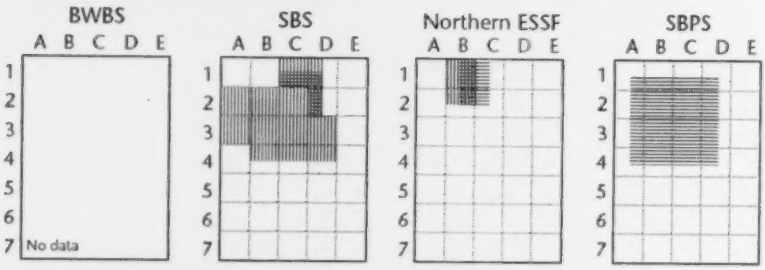


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with well-aerated, seepage water.
- frost-intolerant.
- shade-tolerant.
- decreases in abundance and range on edatopic grid in pioneer seral stage.
- rare in SBSdw1; uncommon in SBSdw2 and dw3, ESSFwc3.

Paxistima myrsinites – falsebox

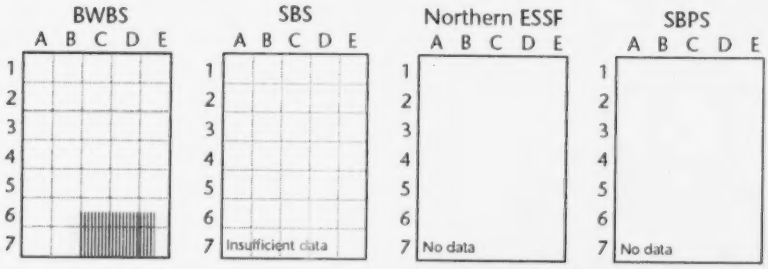


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

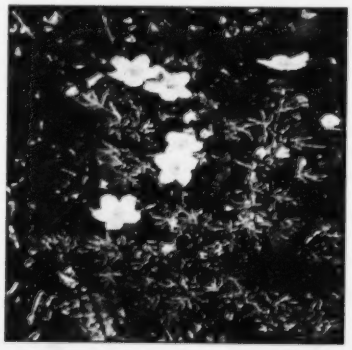
Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- commonly found on mor humus forms.
- persists or may increase in pioneer seral stage.
- not found in ESSFmm1 and wc3.

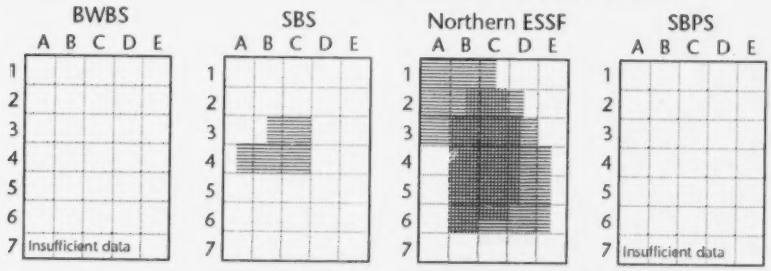
Potentilla fruticosa – shrubby cinquefoil



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk



Rhododendron albiflorum – white-flowered rhododendron

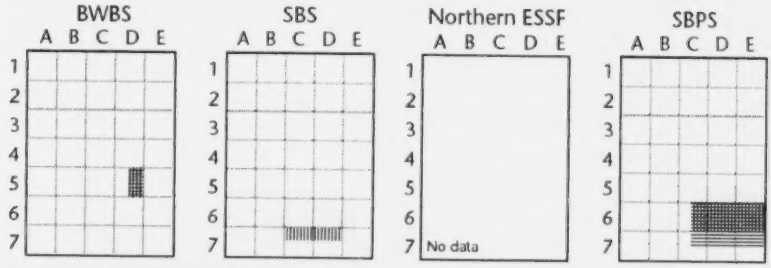

BWBS
A B C D E
1 2 3 4 5 6 7
Insufficient data
SBS
A B C D E
1 2 3 4 5 6 7
Northern ESSF
A B C D E
1 2 3 4 5 6 7
SBPS
A B C D E
1 2 3 4 5 6 7
Insufficient data

BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- tolerant of high snow loads.
- usually indicates subalpine communities.
- litter extracts have allelopathic potential.
- persists in pioneer seral stage.
- occurs only at elevations > 900m in SBS.
- rare in SBSmm, mc2, mc3, and ESSFmc; uncommon in SBSwk, wk2, and ESSFwv.

Ribes hudsonianum – northern black currant

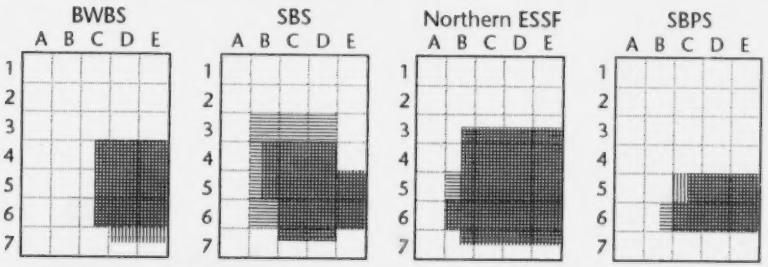


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- persists in pioneer seral stage.

Ribes lacustre – black gooseberry

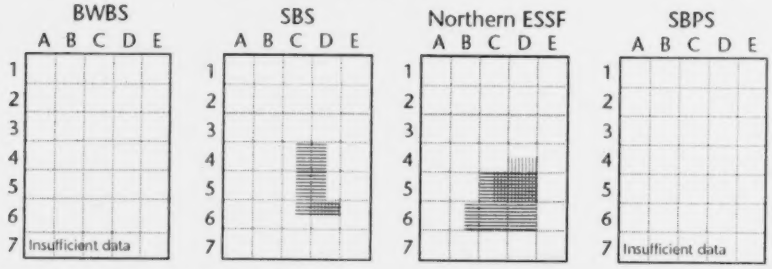


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to shade-intolerant.
- increases in abundance in pioneer seral stage.
- edatopic range may increase to slightly drier sites in SBPSmk.

Ribes laxiflorum – trailing black currant

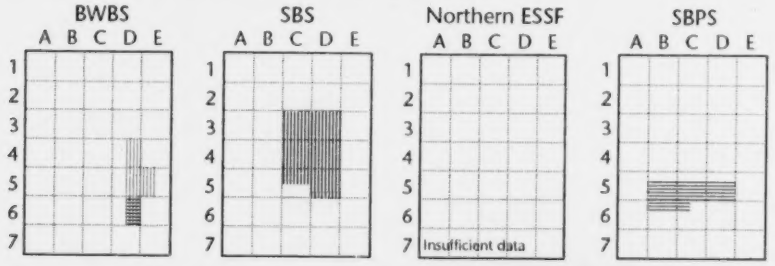

BWBS
A B C D E
1 2 3 4 5 6 7
Insufficient data
SBS
A B C D E
1 2 3 4 5 6 7
Northern ESSF
A B C D E
1 2 3 4 5 6 7
SBPS
A B C D E
1 2 3 4 5 6 7
Insufficient data

BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- commonly found on moder humus forms.
- increases in pioneer seral stage; expanded edatopic range in SBSm and w in pioneer seral stage to drier moisture regimes.
- *R. glandulosum* has a similar edatopic range in climax forests.

Ribes oxyacanthoides – northern gooseberry

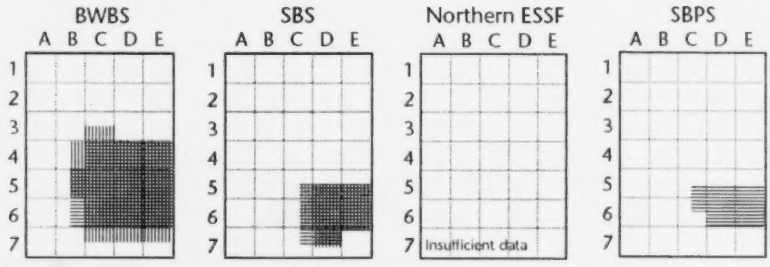


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

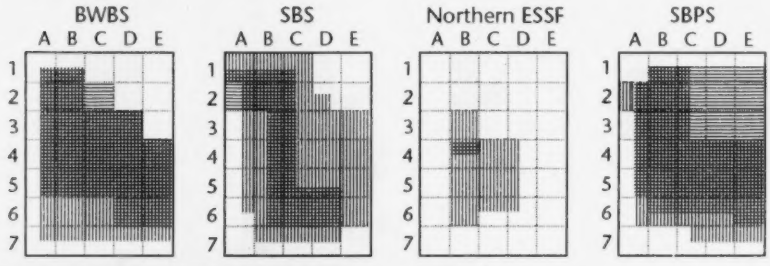
- increases in moisture range in SBSd in pioneer seral stage.
- in SBPSxc and dc, range may increase to slightly drier and much poorer nutrient sites.

Ribes triste – red swamp currant



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Rosa acicularis – prickly rose

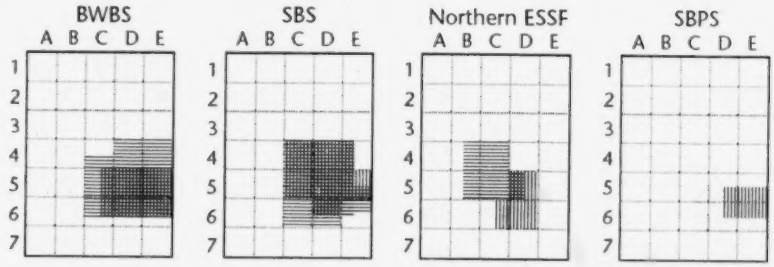


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists or may increase in abundance in pioneer seral stage.
- not found in ESSFmm.
- rare in ESSFmv1, wk1, and wc3.

Rubus idaeus – red raspberry

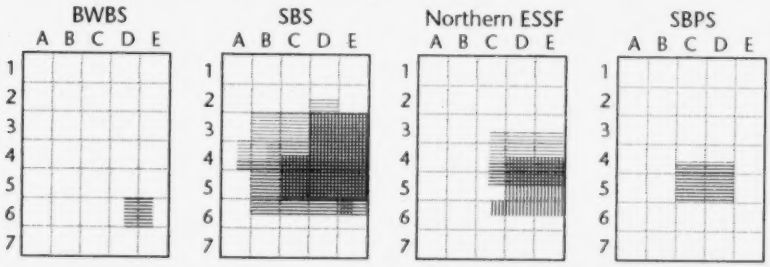


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- characteristic of disturbed sites.
- intolerant of anaerobic soil conditions.
- highly frost-tolerant.
- increases in abundance and edatopic grid range in pioneer seral stage; in SBS and SBPS, edatopic range may increase to 3–6, B–D.

Rubus parviflorus – thimbleberry

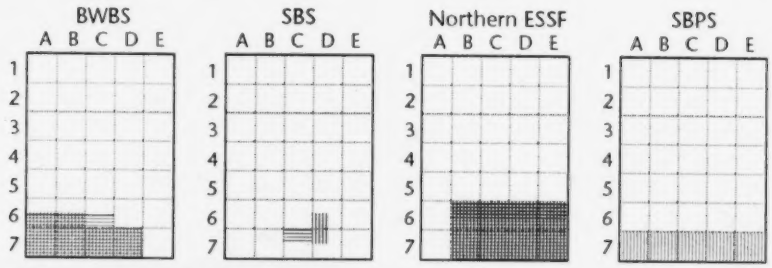


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- increases in abundance and range on edatopic grid in pioneer seral stage.
- persists in deciduous, young and mature seral forests.

Salix barclayi – Barclay's willow

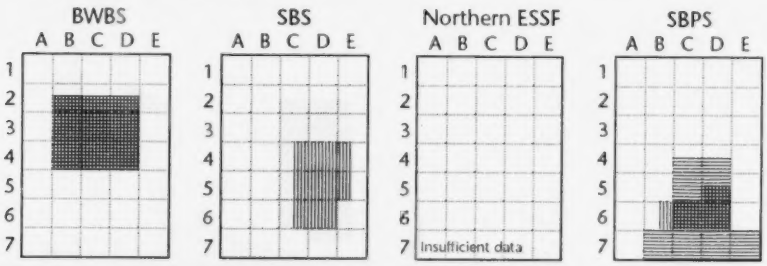


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to very shade-intolerant.
- persists or may increase in abundance in pioneer seral stage.
- edatopic range often increases after disturbance; in SBSm subzones, Barclay's willow can occur on moisture range 2–4.

Salix bebbiana – Bebb's willow

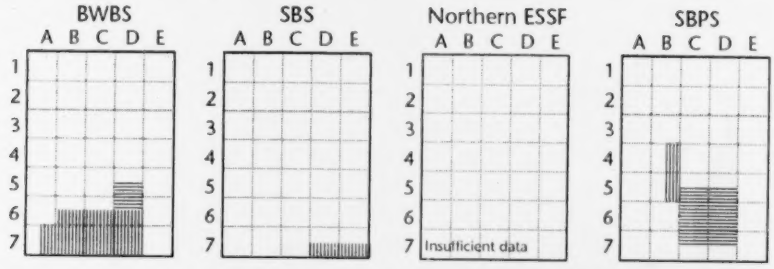


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- increases in abundance in pioneer seral stage.
- prefers mineral soil for regeneration.

Salix glauca – grey-leaved willow

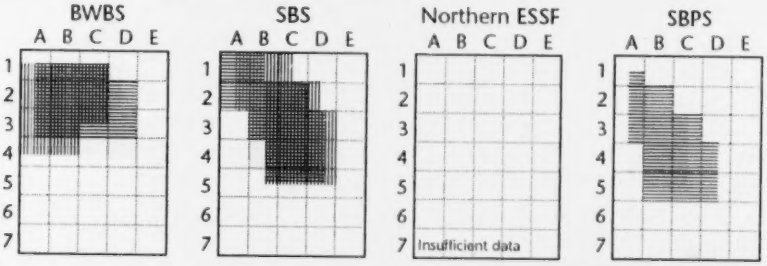


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to very shade-intolerant.
- may indicate frost-prone sites.
- increases in abundance in pioneer seral stage.
- prefers mineral soil for regeneration.

Salix scouleriana – Scouler's willow

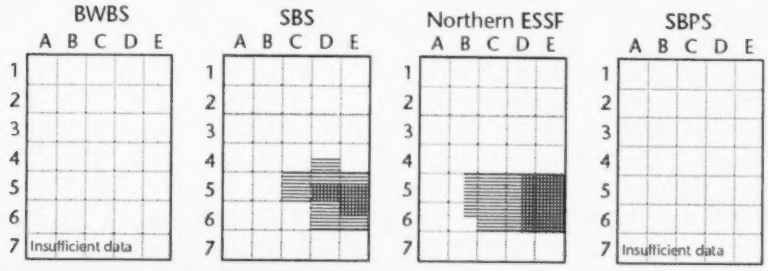


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to very shade-intolerant.
- increases in abundance in pioneer seral stage.
- prefers mineral soil for regeneration.
- after disturbance in SBS, Scouler's willow can occur on coarser soils to moisture class 7.

Sambucus racemosa – red elderberry

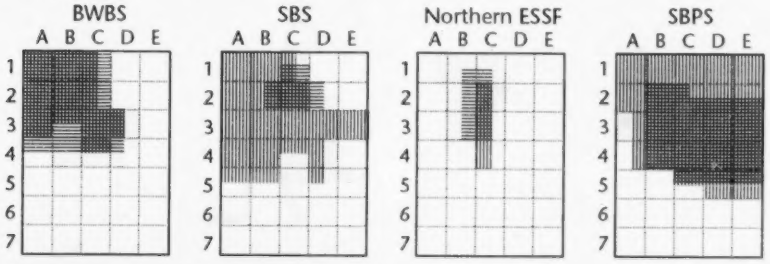


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- indicates high nitrate availability.
- commonly found on moder humus forms.
- persists and may increase in pioneer seral stage.

Shepherdia canadensis – soopolallie

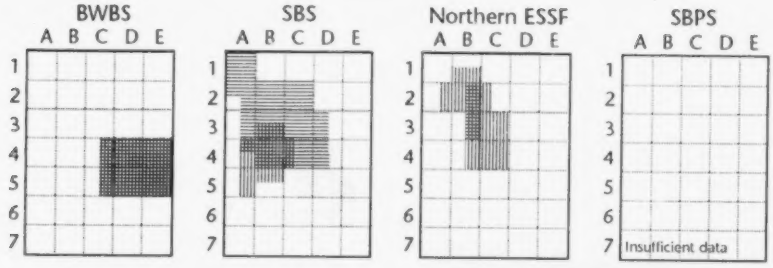


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- in symbiosis with nitrogen-fixing bacteria.
- in SBS, may indicate frost-prone sites when on grid location 5, A–B.
- shade-tolerant to shade-intolerant.
- persists or may increase in abundance in pioneer seral stage.

Sorbus scopulina – western mountain-ash

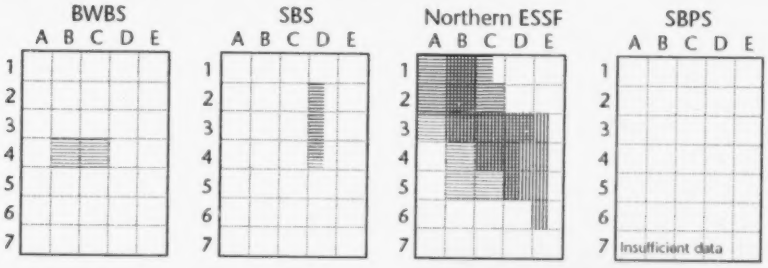


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to very shade-intolerant.
- persists in pioneer seral stage.

Sorbus sitchensis – Sitka mountain-ash

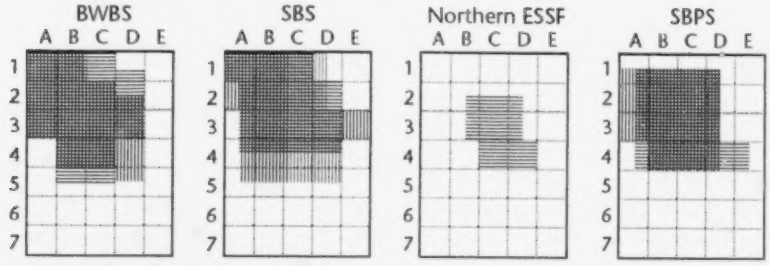


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- predominantly a subalpine species.
- persists in pioneer seral stage.

Spiraea betulifolia – birch-leaved spirea

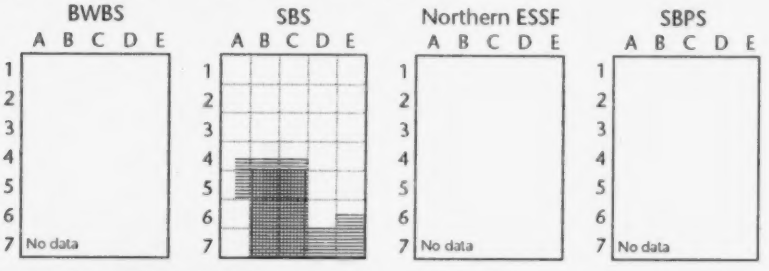


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- increases in abundance in pioneer seral stage; persists in deciduous, young and mature seral forests.
- not found in ESSFwc3.

Spiraea douglasii ssp. *menziesii* – pink spirea

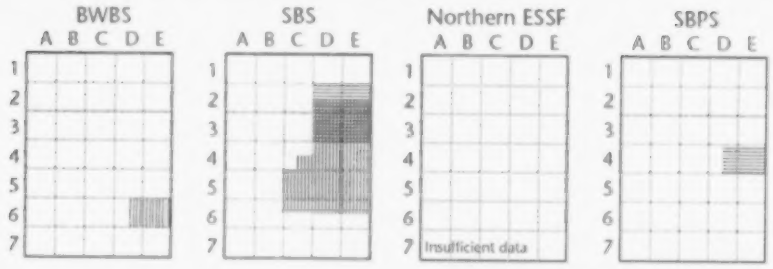


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- associated with lacustrine soils.
- often indicates a frost-prone site or cold, wet soils.
- increases in abundance in pioneer and young seral stages.

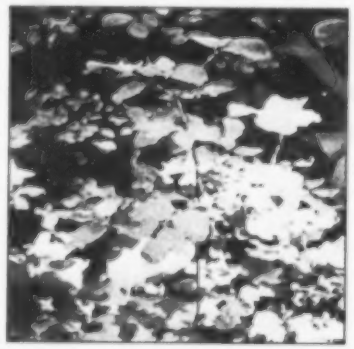
Symphoricarpos albus – common snowberry



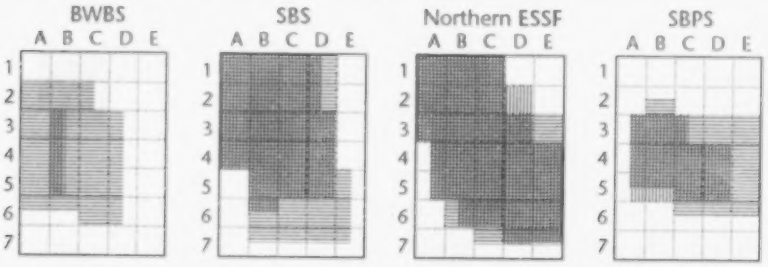
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- prefers fertile and well-drained soils.
- intolerant of heavy snow or short growing season.
- persists and may locally increase in abundance in pioneer seral stage.
- increases in abundance in SBS in deciduous, young and mature seral forests.
- rare in SBSmc2 and SBPSmc; uncommon in SBSmm, mk, wk, and vk.



Vaccinium membranaceum – black huckleberry

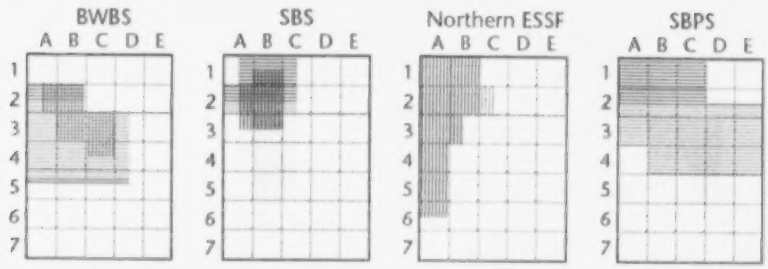


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- commonly found on mor humus forms.
- tolerant of cold temperatures.
- may decrease, persist, or increase in abundance in pioneer seral stage.
- rare in SBSmh; uncommon in SBSdk.
- mostly at higher elevations in SBPSxc.

Vaccinium myrtilloides –velvet-leaved blueberry

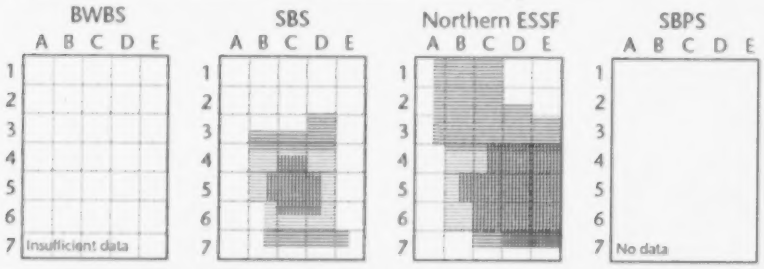


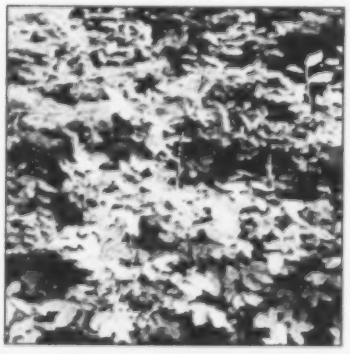
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- often associated with sandy soils.
- persists or may increase in pioneer seral stage.
- not found in SBSmc2, SBSdk, SBPSxc, and southern third of SBPSmk.

Vaccinium ovalifolium – oval-leaved blueberry



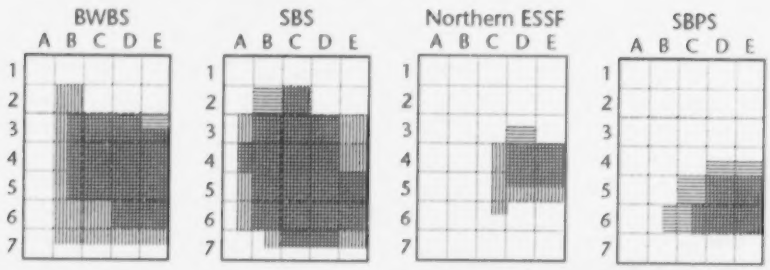


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-tolerant.
- persists in pioneer seral stage.

Viburnum edule – highbush-cranberry



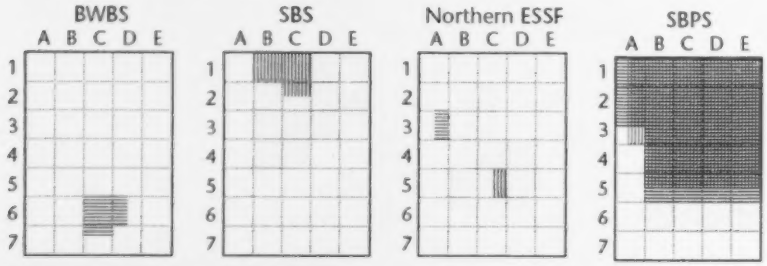
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

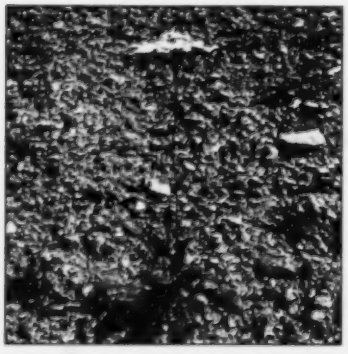
Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- highly frost-tolerant.
- persists in pioneer seral stage.

Dwarf Shrubs, Herbs, and Ferns

Achillea millefolium – yarrow



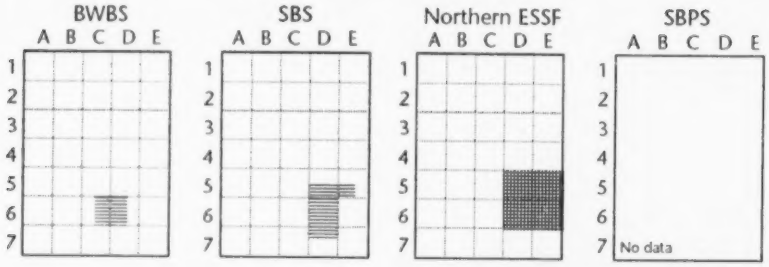


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- increases in abundance in pioneer and young seral forests.

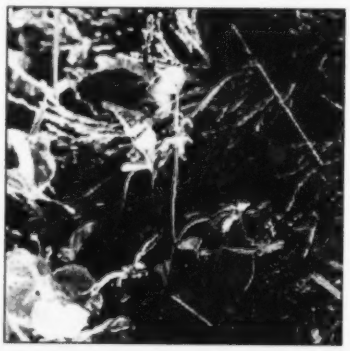
Aconitum delphiniifolium – mountain monkshood



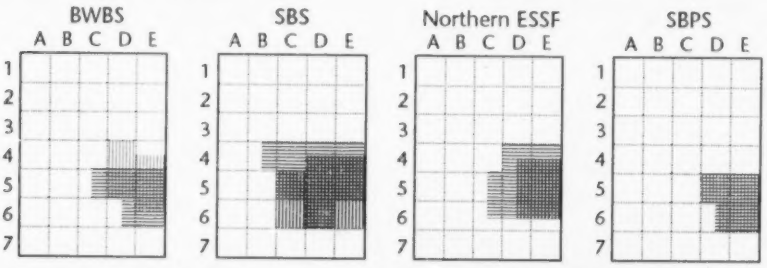
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- uncommon in closed-canopy coniferous forest.
- persists in deciduous, mature seral forests.
- rare in Cariboo Forest Region.



Actaea rubra – baneberry

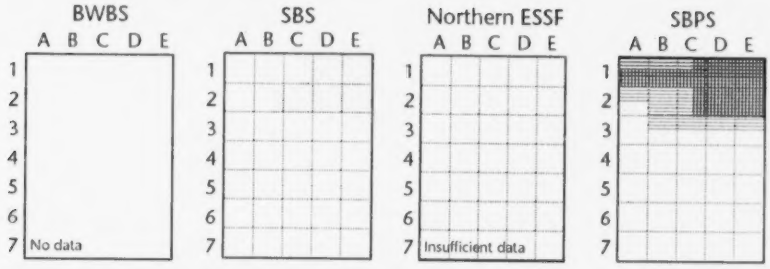


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- commonly found on moder humus forms.
- persists in pioneer seral stage and in deciduous, mature seral forests.

Allium cernuum – nodding onion

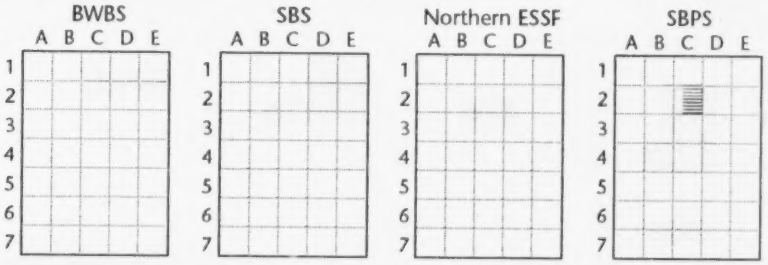


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- prefers south-facing slopes.
- commonly found with Douglas-fir or Rocky Mountain juniper.
- persists in pioneer seral stage.

Anemone multifida – cut-leaved anemone

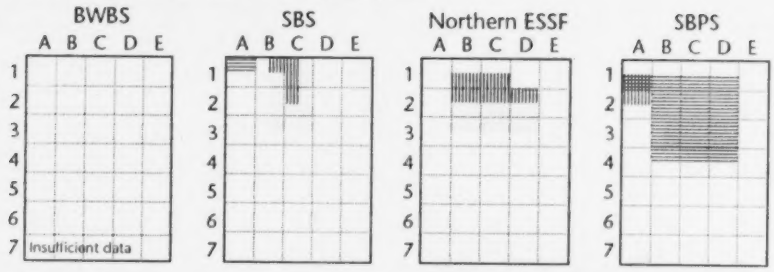


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.

Antennaria neglecta – field pussytoes

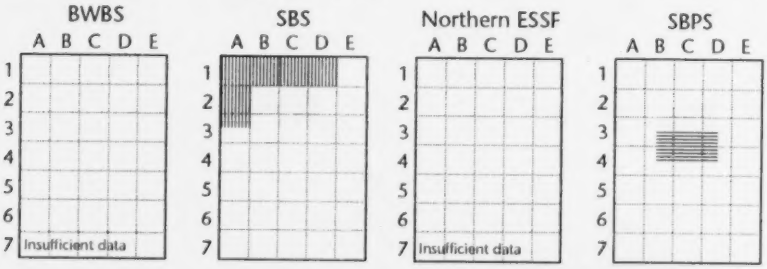


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists and may increase in edatopic range in pioneer seral stage.
- sometimes replaced by *A. racemosa* in SBSdw and SBPSmk.

Antennaria rosea – rosy pussytoes

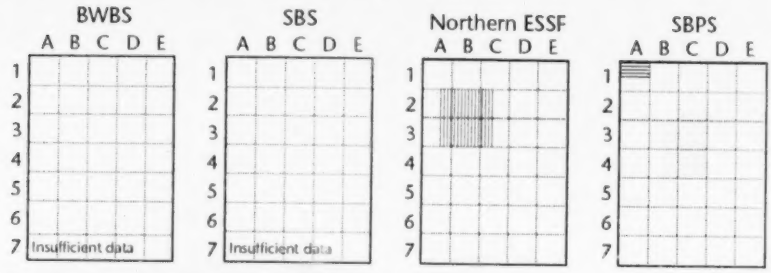


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- was *A. microphylla*
- shade-intolerant.
- persists in pioneer seral stage.

Antennaria umbrinella – umber pussytoes

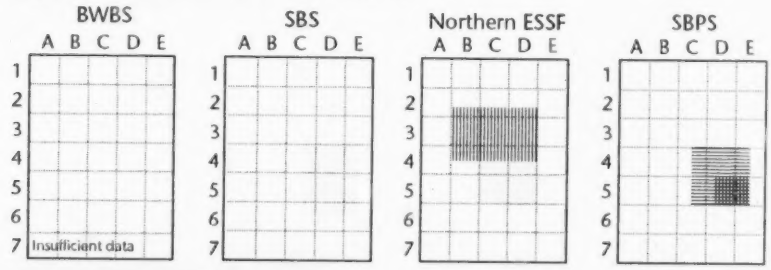


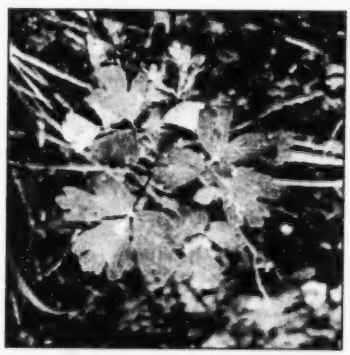
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- may increase in abundance in pioneer seral stage.

Aquilegia formosa – red columbine



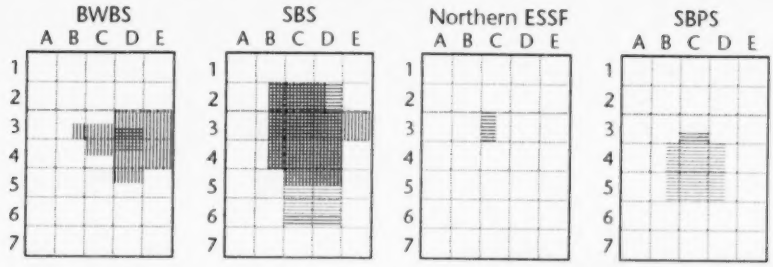


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- increases in abundance in pioneer seral stage.

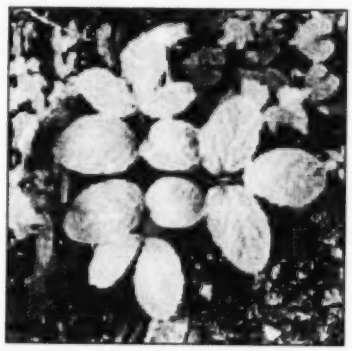
Aralia nudicaulis – wild sarsaparilla



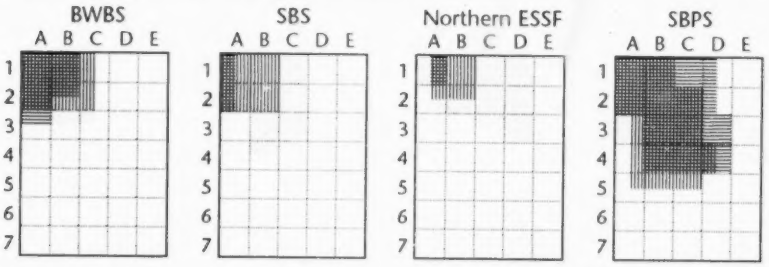
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- decreases in abundance in pioneer seral stage.
- persists or increases in abundance in deciduous and mixedwood, young and mature forests.
- rare in SBSmc1, mc2, and mc3.



Arctostaphylos uva-ursi – kinnikinnick

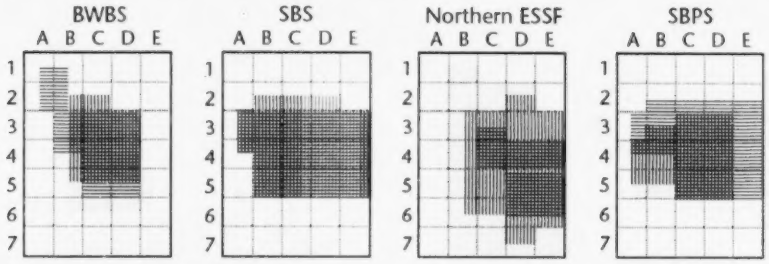


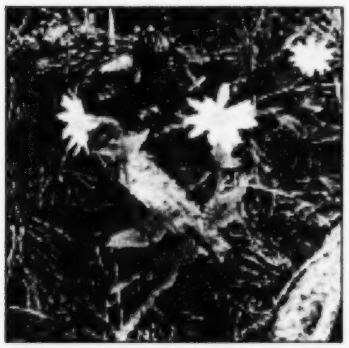
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- commonly found on mor humus forms.
- in the Cariboo Forest Region, when it occurs on moist lower slopes it indicates frost-prone sites.
- persists in pioneer seral stage.
- not found in ESSFmm1, SBSvk; rare in SSFmv1.
- also in SBPSxc on 5–6, B–C on hummocks in shrub-carrs .

Arnica cordifolia – heart-leaved arnica



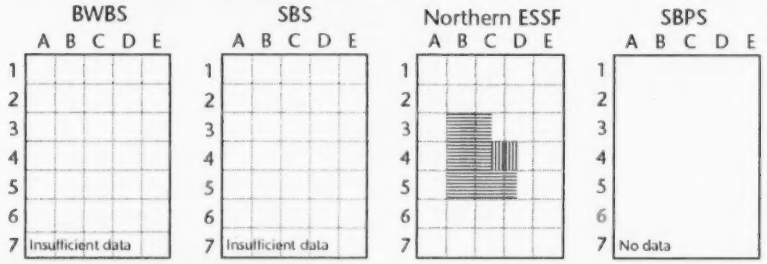


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- increases in abundance in pioneer seral stage.

Arnica latifolia – mountain arnica

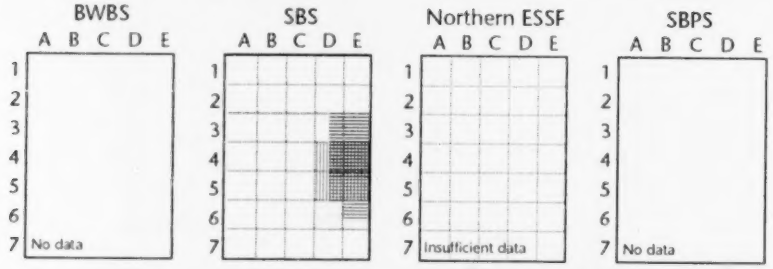


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- restricted to higher elevations.
- associated with aerated water (seepage / stream edges).
- increases in abundance in pioneer seral stage.
- increased range on edatopic grid if mineral soil exposed.

Aruncus dioicus – goatsbeard

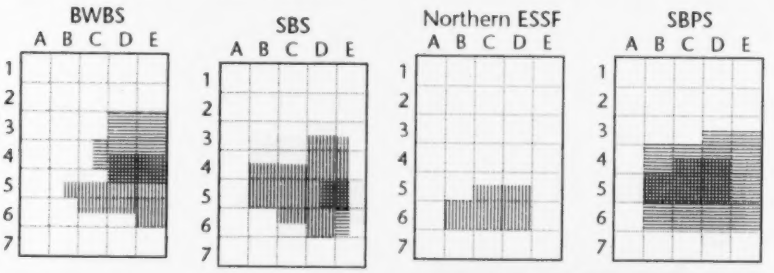


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with higher levels of soil nitrogen availability.
- persists in abundance in pioneer and young seral stages.
- uncommon in SBSdw.

Aster ciliolatus – Lindley's aster

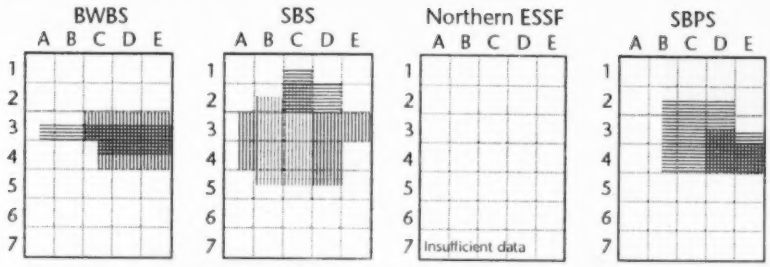


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- also known as fringed aster.
- shade-tolerant to shade-intolerant.
- common in seepage areas in drier climates.
- increases in abundance in pioneer seral stage.

Aster conspicuus – showy aster

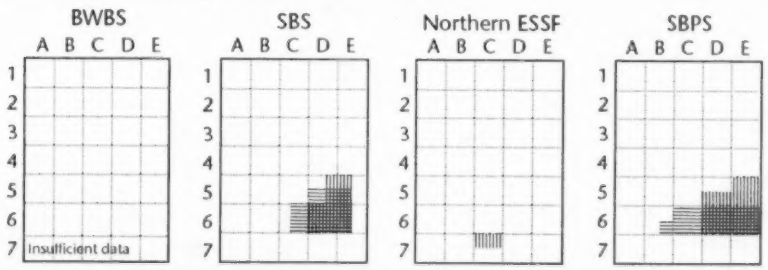


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- characteristic of mor humus forms.
- associated with increased nitrogen availability.
- increases in abundance in pioneer and young seral stages.
- rare in SBPSmc.

Aster modestus – great northern aster

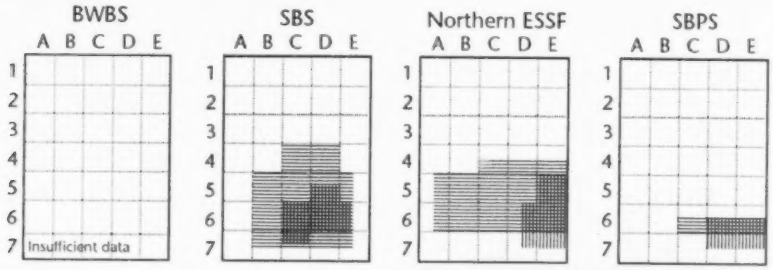


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- characteristic of cold, wet soils.

Athyrium filix-femina – lady fern

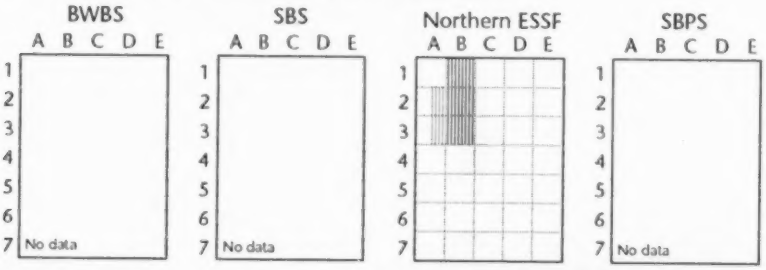


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-tolerant to shade-tolerant.
- associated with aerated water.
- associated with increased nitrogen availability.
- may decrease in abundance in pioneer and young seral stages on moist (4) but not wet (5–7) moisture regimes.
- rare in ESSFvv and SBSdk.

Cassiope mertensiana – white mountain-heather

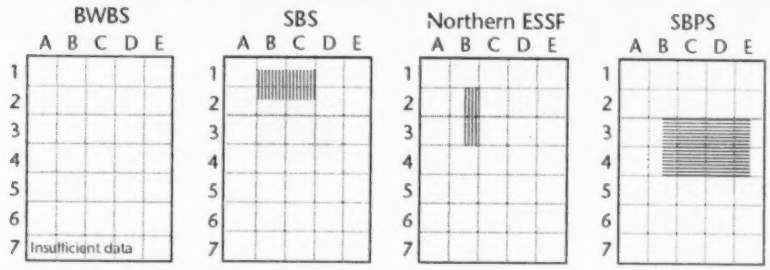


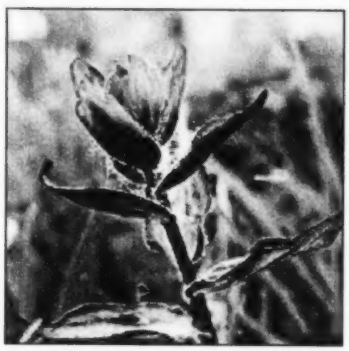
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-intolerant.
- often found on nitrogen-poor soils.
- characteristic of alpine communities.
- associated with deeper, longer-lasting snowpacks.

Castilleja miniata – scarlet paintbrush



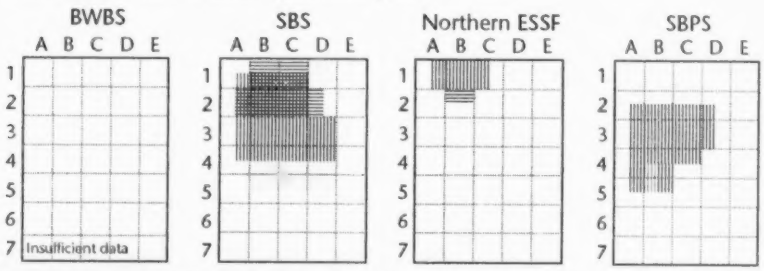


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- increases in abundance in pioneer seral stage.

Chimaphila umbellata – prince's pine

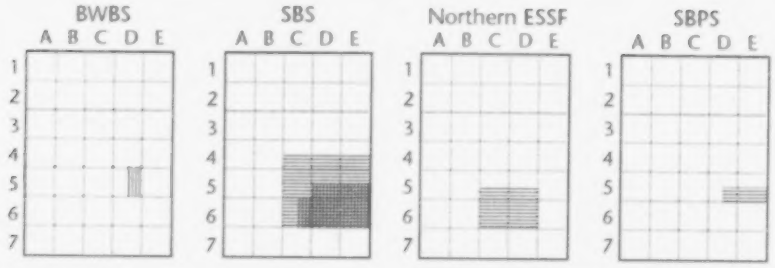


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- common on nitrogen-poor soils.
- associated with mor humus forms.
- tends to decrease in abundance in pioneer seral stage.

Circaea alpina – enchanter's-nightshade

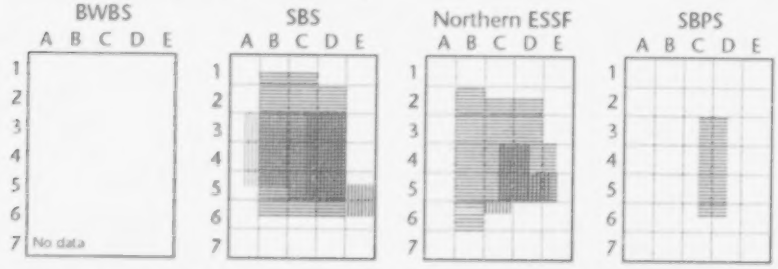


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-tolerant.
- decreases in abundance in pioneer and young seral stages.

Clintonia uniflora – queen's cup

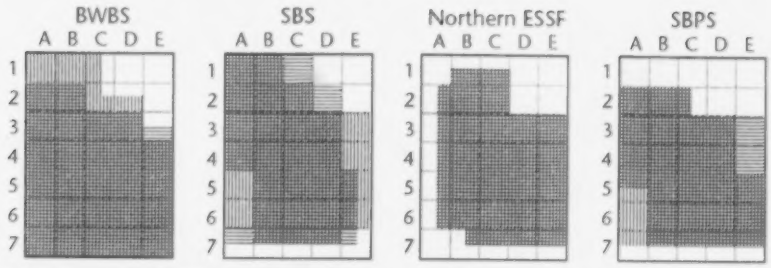


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with mor humus forms.
- decreases in abundance in pioneer seral stage.

Cornus canadensis – bunchberry

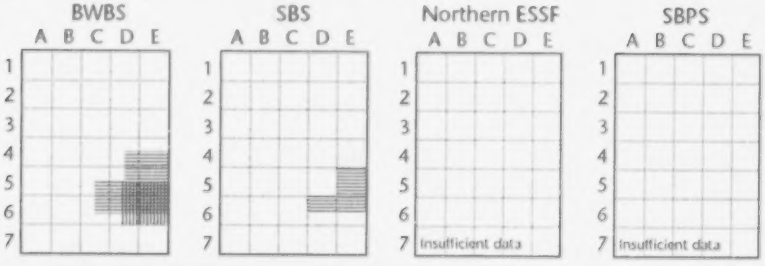


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with mor humus forms.
- may decrease in abundance in pioneer seral stage.

Delphinium glaucum – tall larkspur

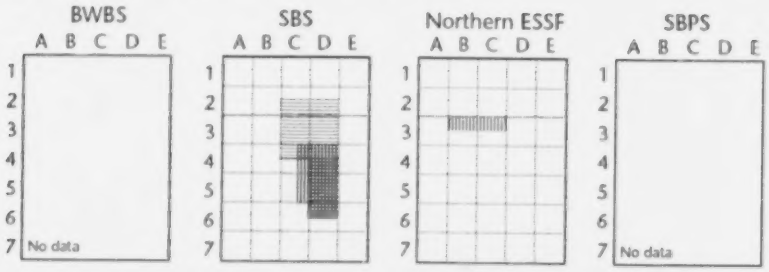


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to shade-intolerant.
- persists in pioneer seral stage.
- rare in Cariboo Forest Region.

Disporum hookeri – Hooker's fairybells

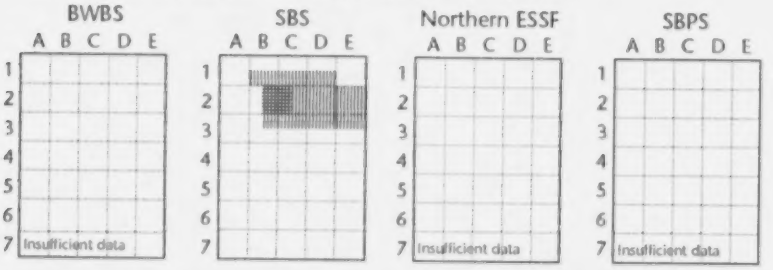


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with increased nitrogen availability.
- often associated with coarser soils.
- shade-tolerant.
- persists in abundance in pioneer seral stage.
- rare in SBSmc2, mc3, and mk2.
- rare in the Cariboo Forest Region SBSwk1.

Disporum trachycarpum – rough-fruited fairybells

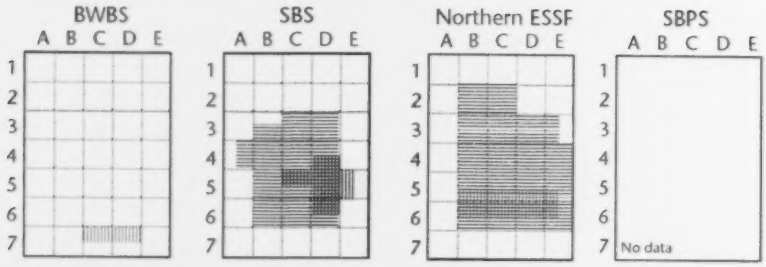


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stage.
- sporadic occurrence in climax forests of SBPSmk, over a wide range of moisture regimes.
- uncommon in SBSmc, mw, and wk1.

Dryopteris expansa – spiny wood fern

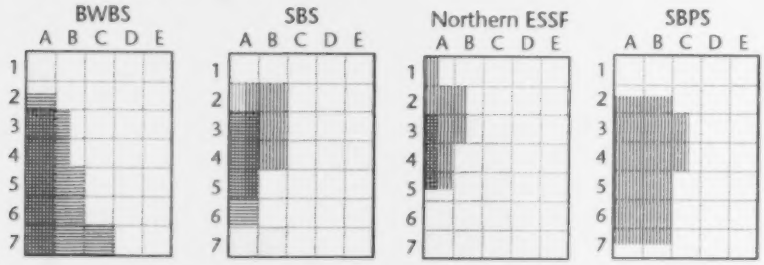


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- often associated with decaying wood.
- shade-tolerant.
- decreases in abundance in pioneer seral stage.

Empetrum nigrum – crowberry

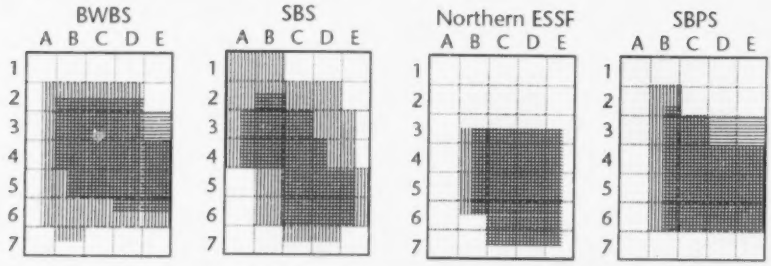


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- often found on nitrogen-poor soils.
- associated with mor humus forms.
- persists in abundance in pioneer seral stage.
- rare in SBSdw, mh, mw, mc, and ESSFwc3; absent in ESSFwk.

Epilobium angustifolium – fireweed

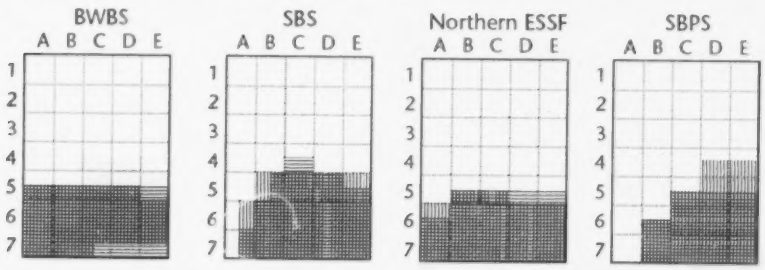


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant to very shade-intolerant.
- persists in small amounts in >200-year-old forests.
- characteristic of recently disturbed sites.
- large increases in abundance in pioneer seral stage and increases in range on edatopic grid.

Equisetum arvense – common horsetail

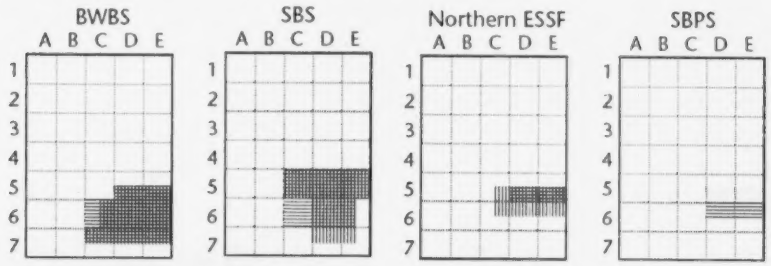


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- may increase in abundance and range on edatopic grid to much drier moisture range in pioneer seral stage.

Equisetum pratense – meadow horsetail

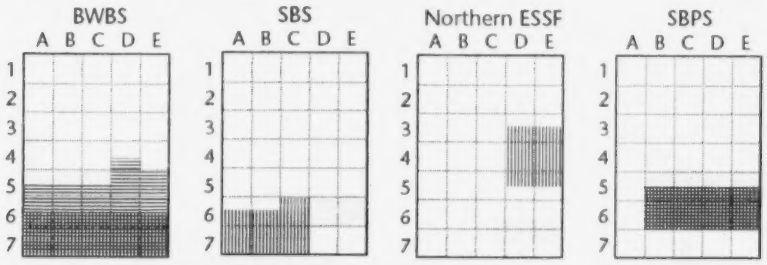


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- persists or may increase in abundance and range on edatopic grid in pioneer seral stage.

Equisetum scirpoides –dwarf scouring-rush

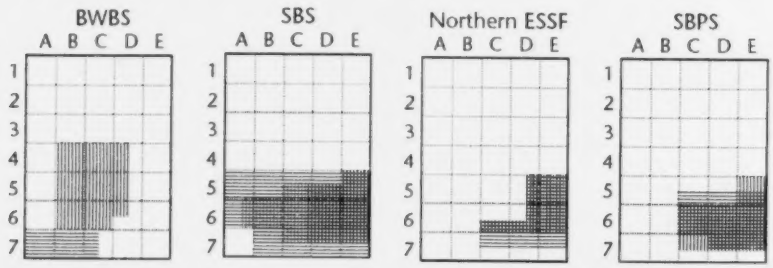


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- may indicate frost-prone sites or decaying wood.

Equisetum sylvaticum – wood horsetail

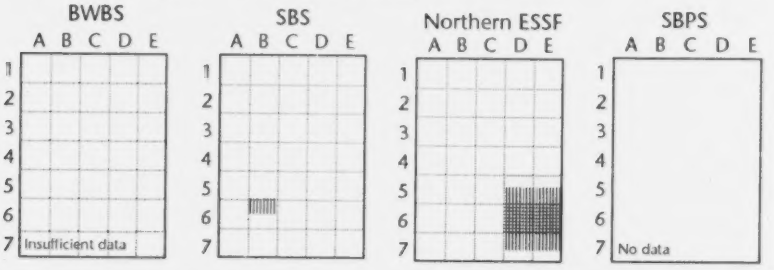


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- decreases in abundance in pioneer seral stage.

Erigeron peregrinus – subalpine daisy

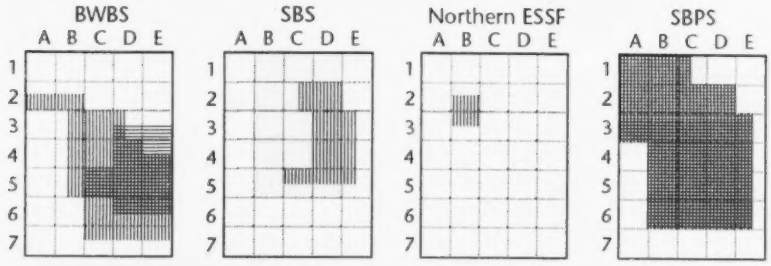


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- common in some non-forested, wet meadows.
- characteristic of alpine and open, subalpine ecosystems.

Fragaria virginiana – wild strawberry

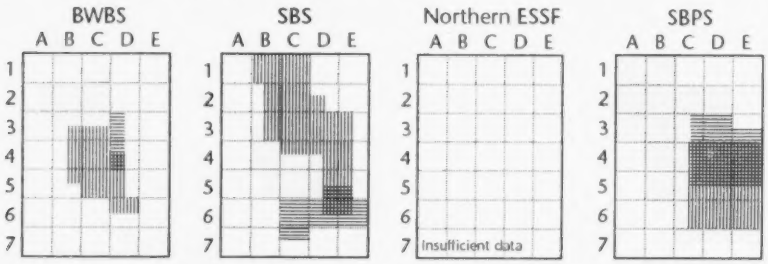


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-intolerant.
- often associated with calcium-rich soils.
- often increases in abundance in pioneer and young seral forests.
- after disturbance, edatopic range expands to drier ecosystems.

Galium boreale – northern bedstraw

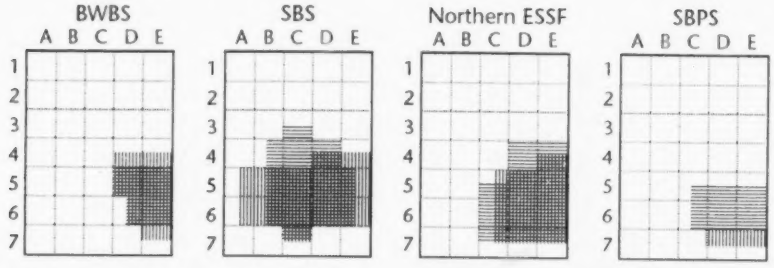


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- often increases in abundance after disturbance.

Galium triflorum – sweet-scented bedstraw

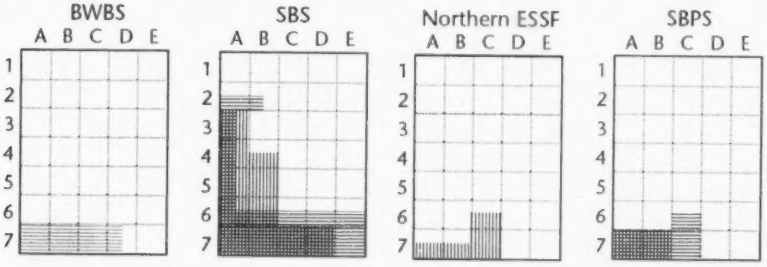


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with nitrogen-rich soils.
- usually increases in abundance in pioneer seral stage.

Gaultheria hispidula – creeping-snowberry

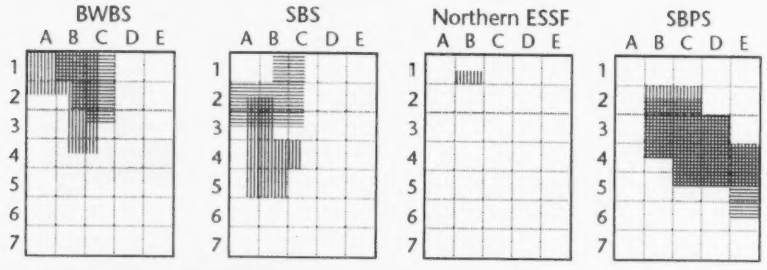


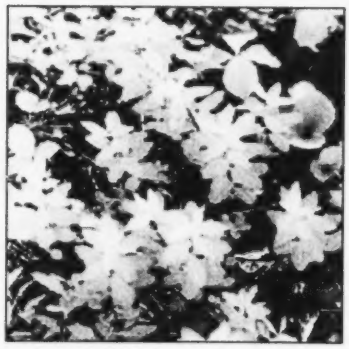
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with nitrogen-poor soils.
- decreases in abundance in pioneer seral stage.

Geocaulon lividum – bastard toad-flax



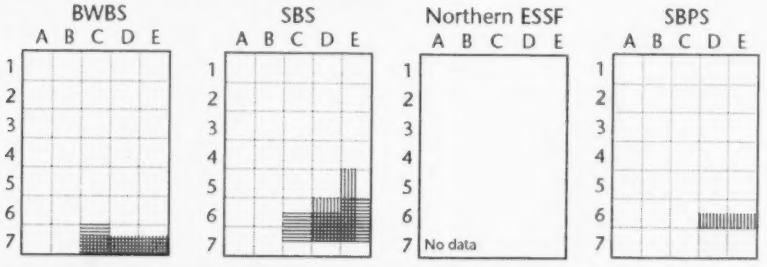


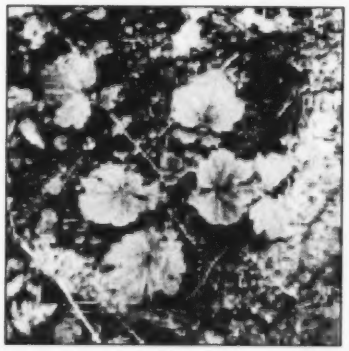
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with mor humus forms.
- persists or may decrease in abundance in pioneer seral stage.
- alternate host for Comandra blister rust (*Cronartium comandrae*).

Geum macrophyllum – large-leaved avens



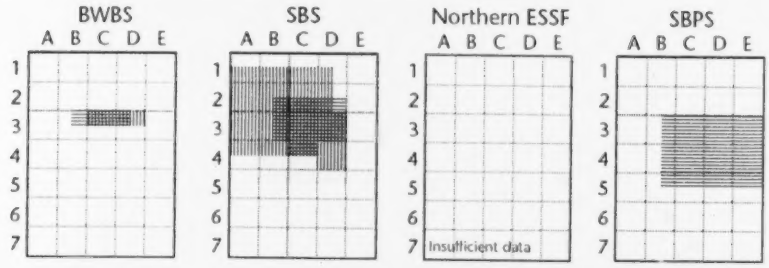


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with seepage or fluctuating watertable.
- associated with moder humus forms.
- may increase in abundance in pioneer seral stage.
- may increase range on edatopic grid if mineral soil is exposed in pioneer seral stage.

Goodyera oblongifolia – rattlesnake-plantain

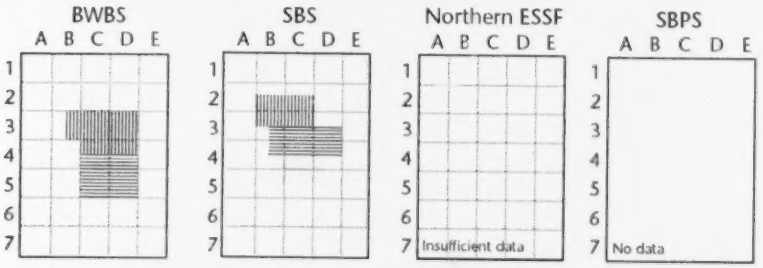


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

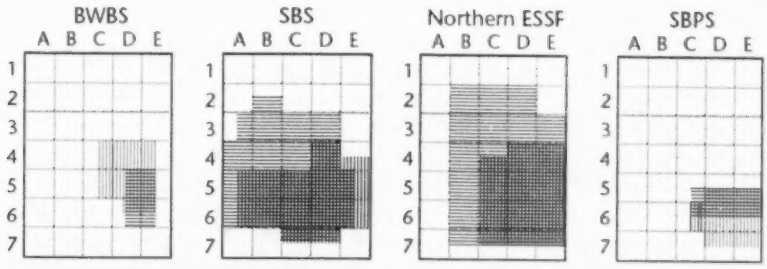
- shade-tolerant.
- associated with mor humus forms.
- associated with nitrogen-poor soils.

Goodyera repens – dwarf rattlesnake orchid



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Gymnocarpium dryopteris – oak fern

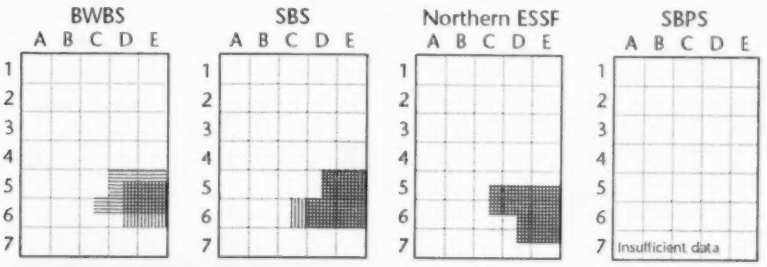


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with seepage.
- decreases in abundance and range on edatopic grid in pioneer seral stage.

Heracleum lanatum – cow-parsnip

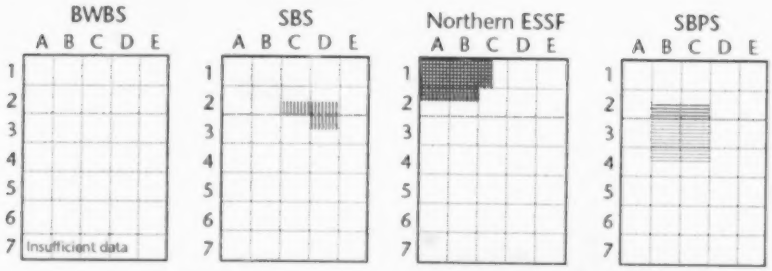


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with moder and mull humus forms.
- associated with increased nitrogen availability.
- often occurs with seepage or on soils with a fluctuating groundwater table.
- may increase in abundance in pioneer and young seral stages.
- in deciduous, mature seral stage will increase in abundance in ESSF and can occur in SBPSmk (5–6, D–E).

Hieracium albiflorum – white hawkweed

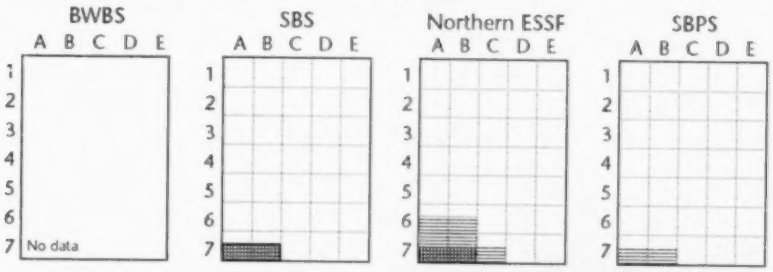


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- increases in abundance and range on edatopic grid in pioneer seral stage, especially where mineral soil has been exposed.

Kalmia microphylla – western bog-laurel

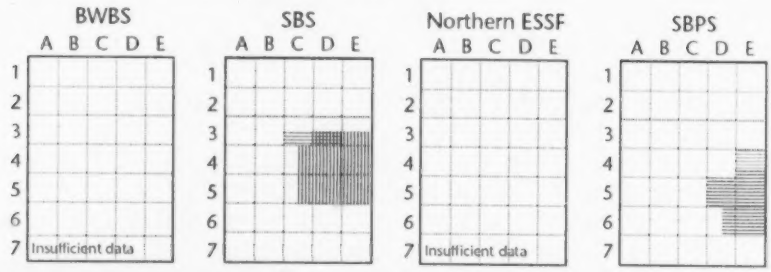


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with standing water.
- usually grows in bogs.

Lathyrus nevadensis – purple peavine

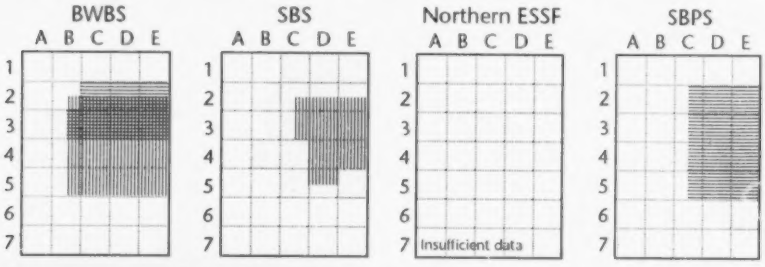


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- symbiotic relationship with nitrogen-fixing bacteria enhances the supply of available soil nitrogen.
- may increase in abundance in pioneer and young seral stages and in deciduous or mixedwood, mature seral stage.
- not found in SBSmc3, mk1, or mk2.

Lathyrus ochroleucus – creamy peavine

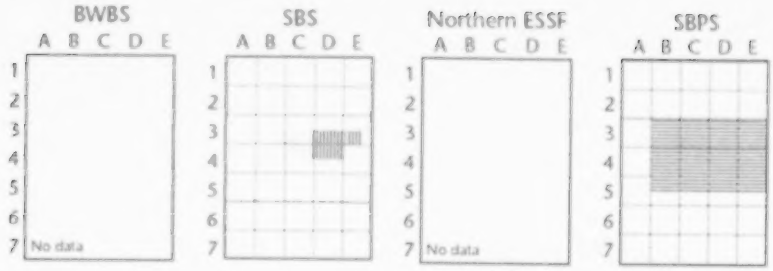


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- symbiotic relationship with nitrogen-fixing bacteria enhances the supply of available soil nitrogen.
- persists or may increase in abundance in pioneer and young seral stages.
- often abundant in mesic and near mesic, deciduous, mature seral forests.

Lilium columbianum – tiger lily

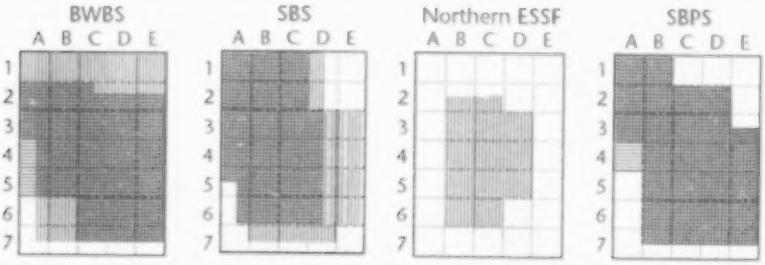


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- increases in abundance in pioneer and young seral stages.

Linnaea borealis – twinflower

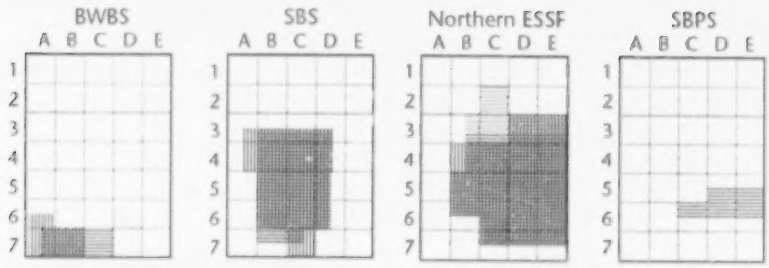


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stage when disturbance is minimal; otherwise decreases in abundance.

Listera cordata – heart-leaved twayblade

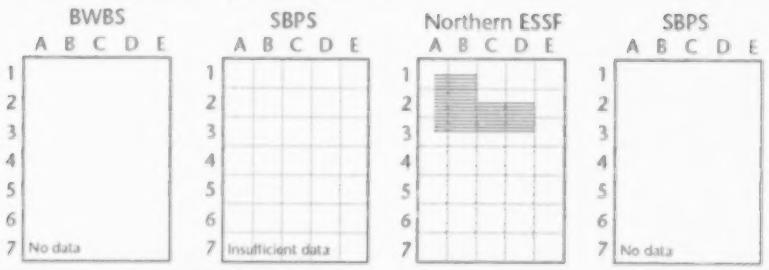


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.

Luetkea pectinata – partridgefoot

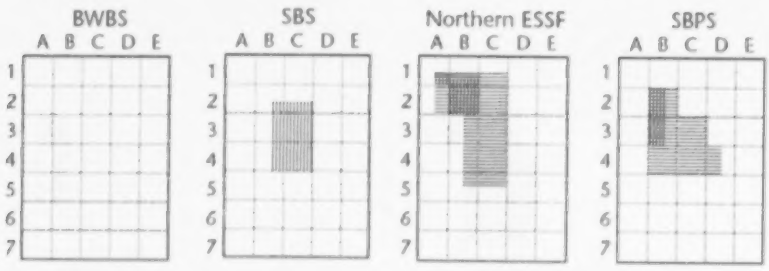


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-intolerant.
- indicator of late snow-melt patches and higher-elevation, wet, seepage forests.

Lupinus arcticus – arctic lupine

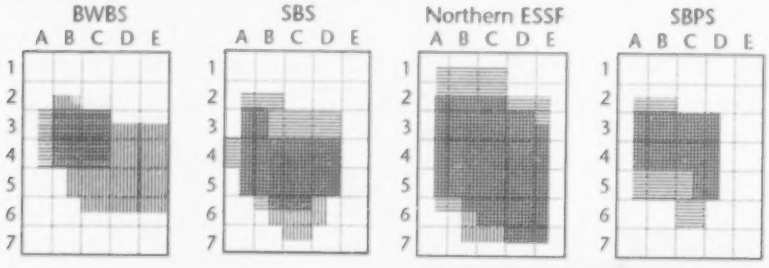


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- symbiotic relationship with nitrogen-fixing bacteria enhances the supply of available soil nitrogen.
- increases in abundance in pioneer and young seral stages.

Lycopodium annotinum – stiff clubmoss

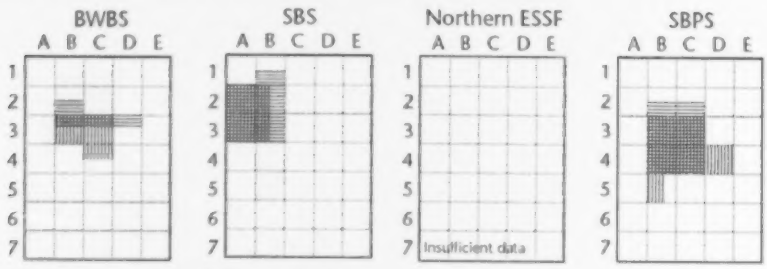


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer seral stage.

Lycopodium complanatum – ground-cedar

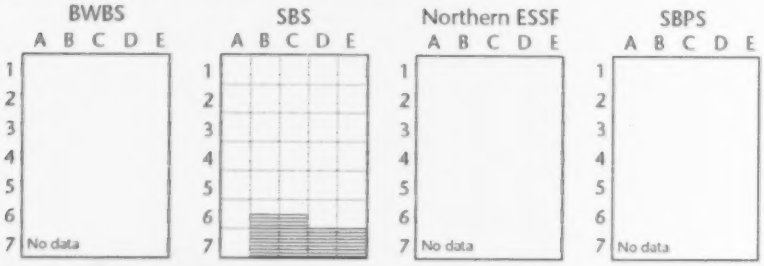


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- commonly found on nitrogen-poor soils.
- associated with mor humus forms.
- decreases in abundance in pioneer seral stage.
- may increase in abundance in deciduous, mature seral stage.

Lysichiton americanum – skunk cabbage

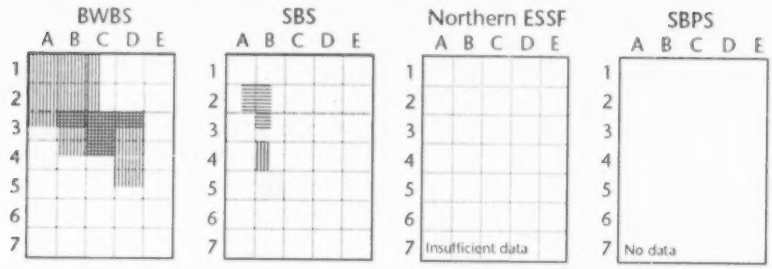


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with high watertables and organic soils.
- sensitive to trampling and changes in watertable.
- persists or may decrease in abundance in pioneer seral stage.
- not found in SBSwk1 of the Cariboo Forest Region.

Maianthemum canadense – wild lily-of-the-valley

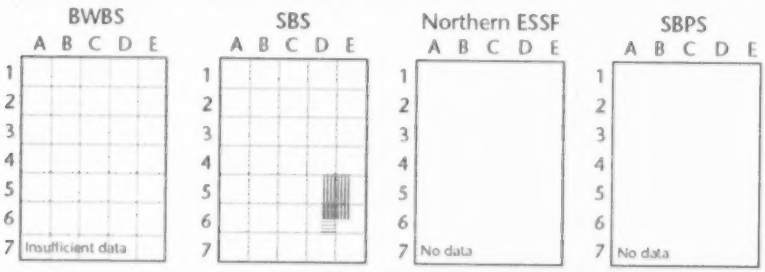


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- may decrease or persist in abundance in pioneer seral stage.
- not found in SBSmm or mc, and only in the northern half of SBSmh and mw of the Cariboo Forest Region.

Matteuccia struthiopteris – ostrich fern

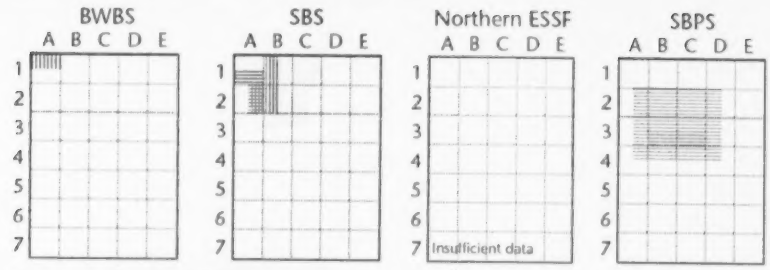


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with aerated water.
- may decrease in pioneer seral stage due to vegetation competition.

Melampyrum lineare – cow-wheat

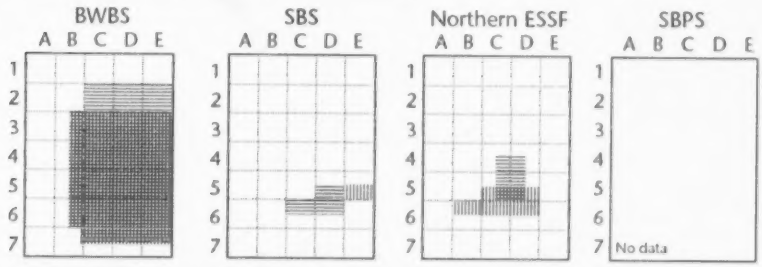


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with well-drained soils.

Mertensia paniculata – tall bluebells

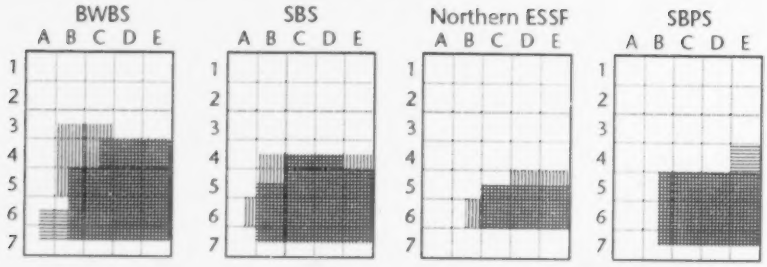


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

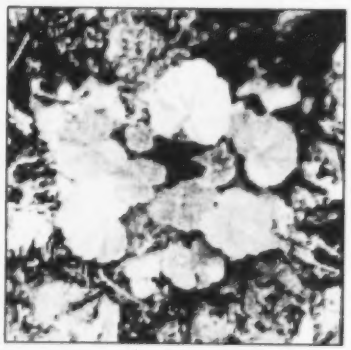
Indicator Values and Species Notes

- often associated with finer-textured soils.
- very rare in the Cariboo Forest Region.

Mitella nuda – common mitrewort



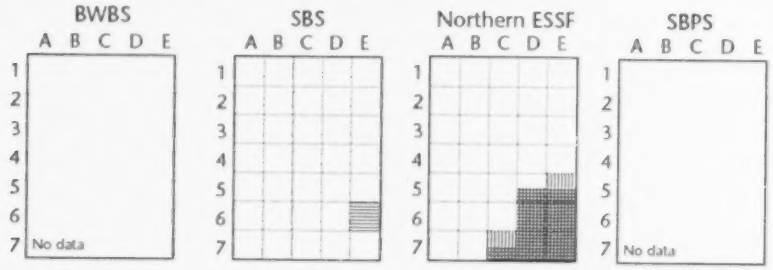
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk



Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer seral stage.

Mitella pentandra – five-stamened mitrewort

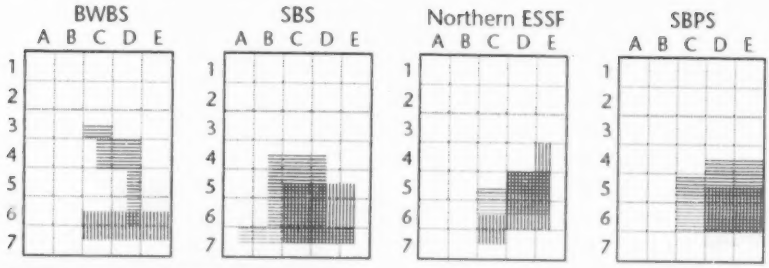


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- persists in pioneer seral stage.

Moneses uniflora – single delight

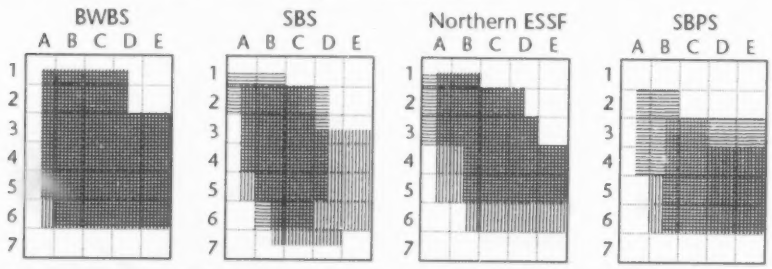


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.

Orthilia secunda – one-sided wintergreen

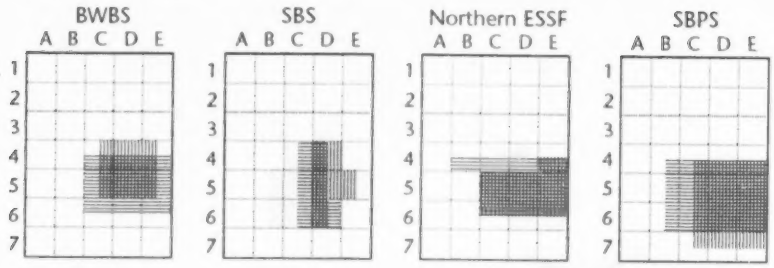


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- persists in abundance in unburned clearcuts; otherwise decreases in abundance in pioneer seral stage.

Osmorhiza chilensis – mountain sweet-cicely

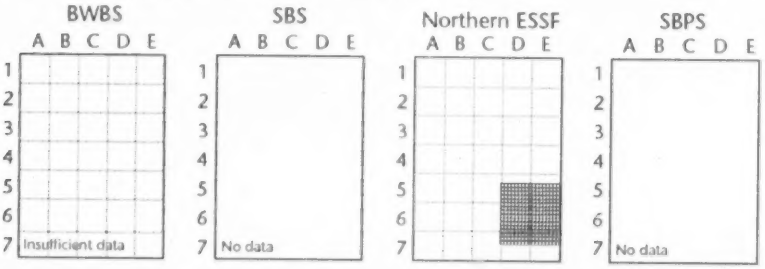


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- common on nitrogen-rich soils.
- increases in abundance in pioneer seral stage and in deciduous, young and mature seral stages.

Osmorhiza purpurea – purple sweet-cicely

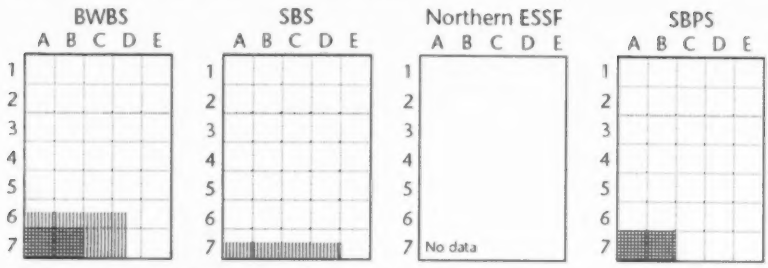


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- can easily be confused with *O. chilensis*.
- persists in pioneer seral stage.

Oxycoccus oxycoccos – bog cranberry

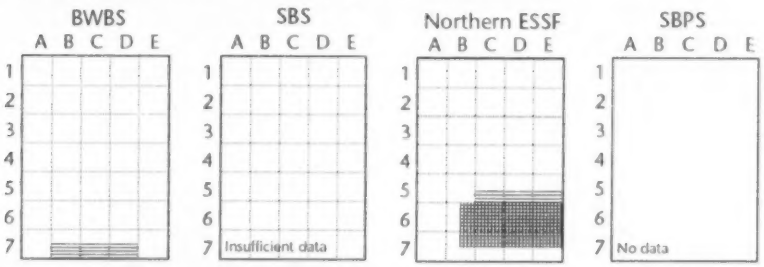


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- associated with nutrient-poor soils.
- grows in bogs and fens.

Parnassia fimbriata – fringed grass-of-Parnassus

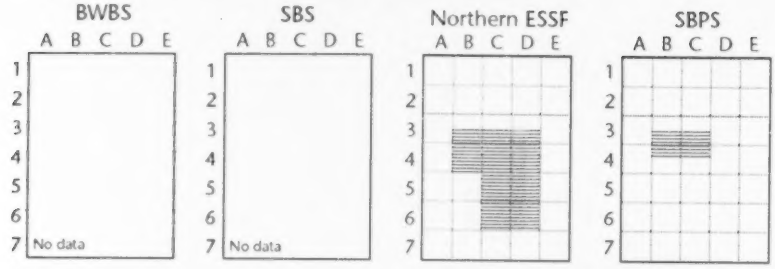


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- associated with moder humus forms.
- increases in abundance in pioneer seral stage in seepage areas.
- a subalpine species that will occasionally occur on similar sites in SBSwk1.

Pedicularis bracteosa – bracted lousewort

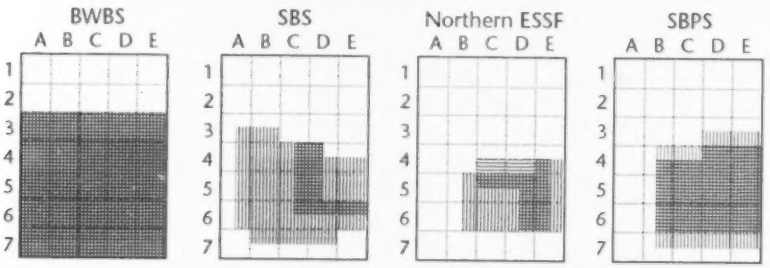


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- persists in pioneer seral stage.
- on restricted sites in SBPSmk.

Petasites frigidus – sweet coltsfoot

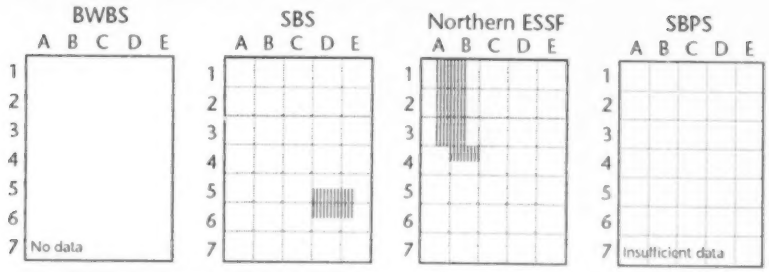


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- includes var. *palmatus*, var. *frigidus*, and var. *nivalis*.
- more common on finer-textured soils.
- moderately shade-tolerant to very shade-tolerant.
- persists or may increase in abundance in pioneer and young seral stages.
- photo is of var. *palmatus*.

Phyllodoce empetriformis – pink mountain-heather

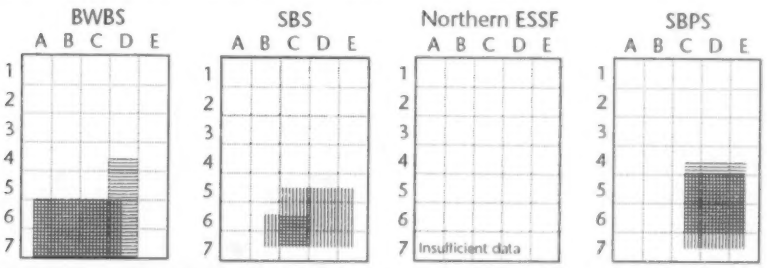


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

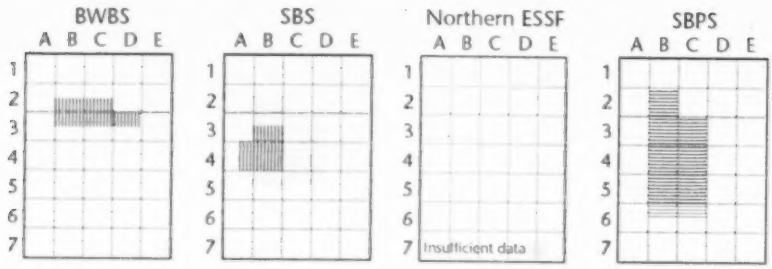
- shade-intolerant.
- characteristic of alpine communities.
- associated with late-melting snowbanks.

Platanthera obtusata – one-leaved rein orchid



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Platanthera orbiculata – large round-leaved rein orchid

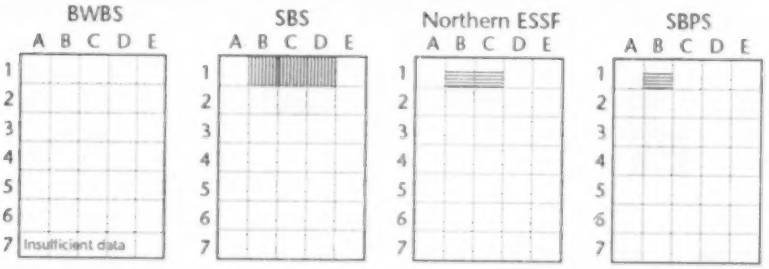


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- associated with mor humus forms.
- decreases in abundance in pioneer seral stage.

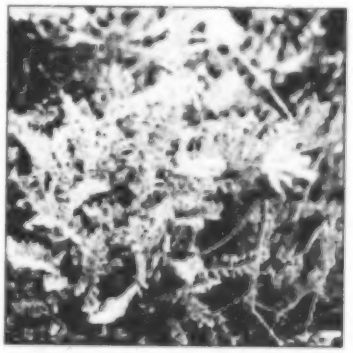
Polemonium pulcherrimum – showy Jacob's-ladder



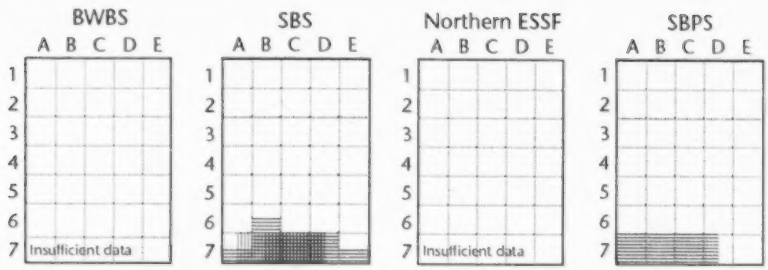
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- increases or persists in pioneer seral stage.



Potentilla palustris – marsh cinquefoil

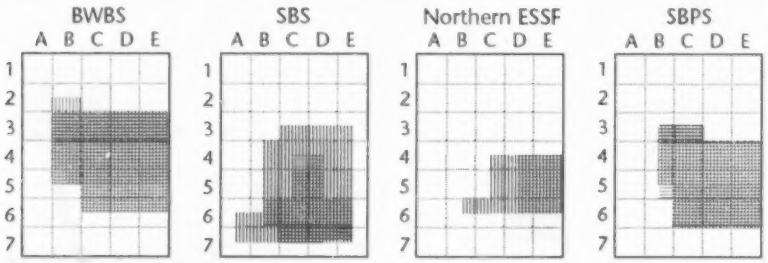


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with a year-round high watertable.

Pyrola asarifolia – pink wintergreen

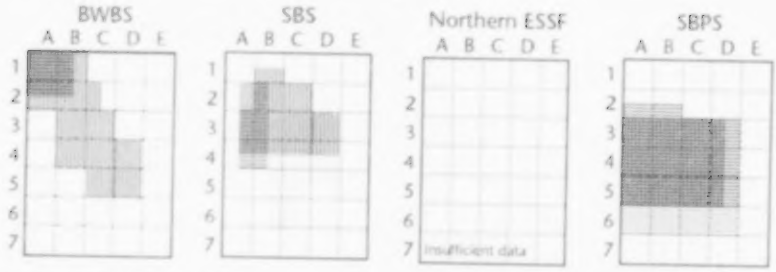


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer seral stage.
- persists in deciduous and mixedwood, mature seral stage.

Pyrola chlorantha – green wintergreen

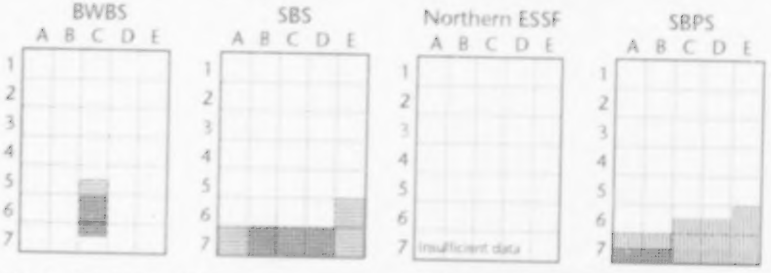


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade tolerant to shade intolerant.
- decreases in abundance in pioneer seral stage.

Rubus arcticus – nagoonberry

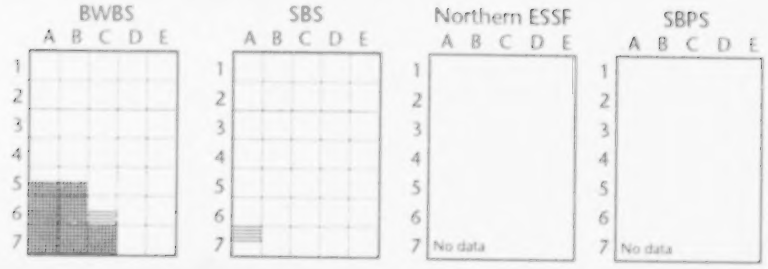


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with cold, wet soils.

Rubus chamaemorus – cloudberry

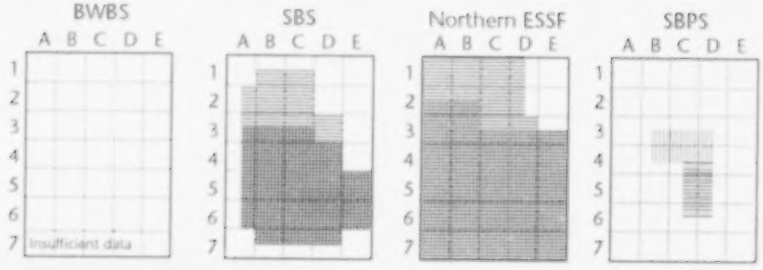


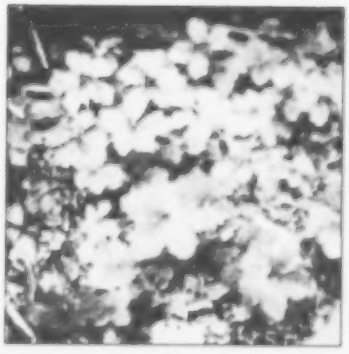
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with sphagnum moss.

Rubus pedatus – five-leaved bramble



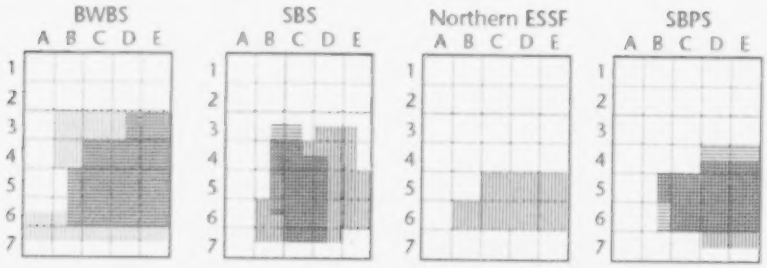


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- may decrease or persist in abundance in pioneer seral stage.
- rare in all SBSd subzones and in SBSmcs, mh, and mkz.
- rare in SBPSmk, occurring mostly in areas transitional to SBPSmc.
- uncommon in SBSmw.

Rubus pubescens – trailing raspberry

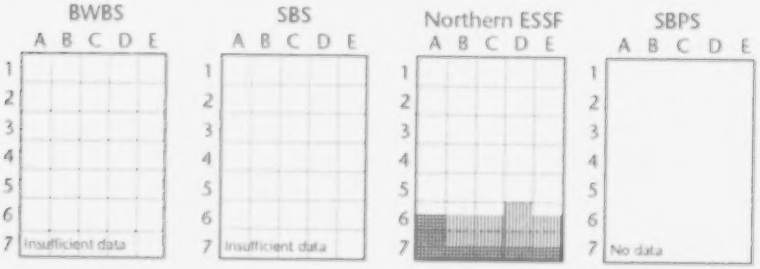


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stage.
- not found in ESSFmc, mk, and mm; rare in ESSFmvt.

Sanguisorba canadensis – Sitka burnet

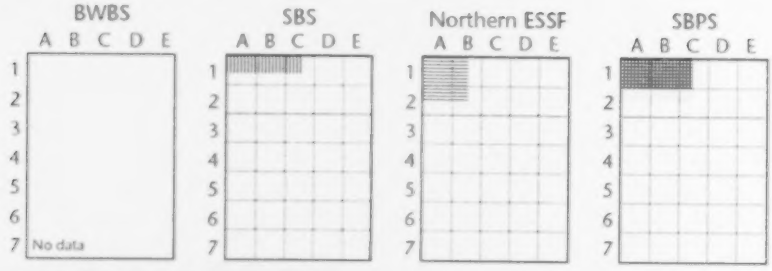


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- increases in abundance in pioneer seral stage.

Saxifraga ferruginea – Alaska saxifrage

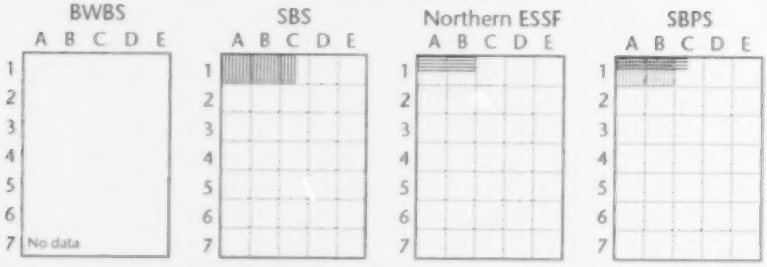


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- persists in pioneer seral stage.

Sedum lanceolatum – lance-leaved stonecrop

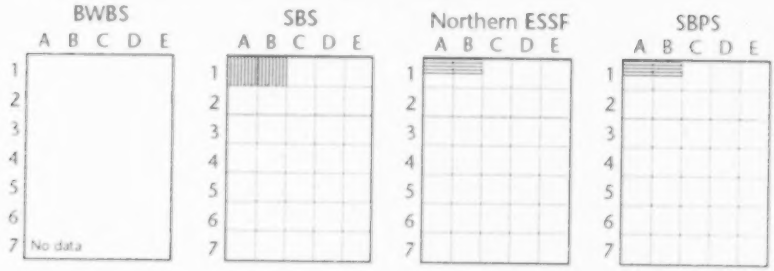


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

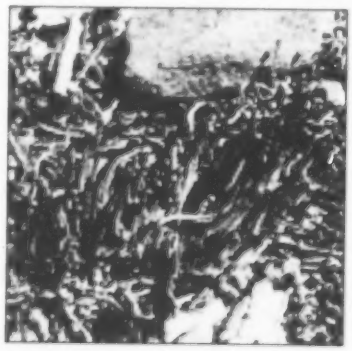
Indicator Values and Species Notes

- found on thin soils or open, rocky ground.

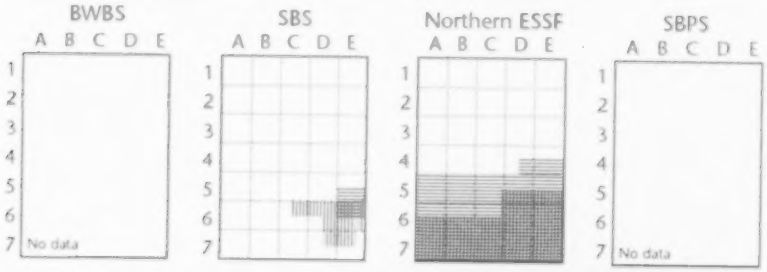
Selaginella densa – compact selaginella



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk



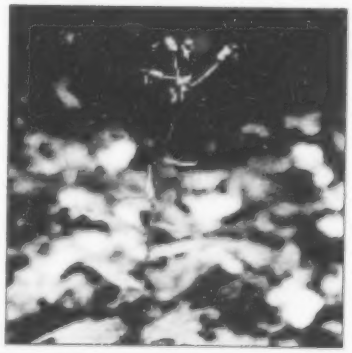
Senecio triangularis – arrow-leaved groundsel



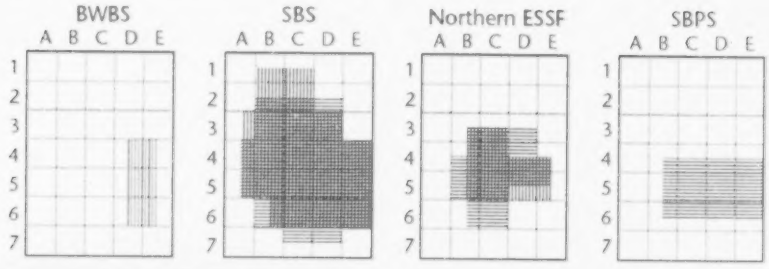
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to light-demanding.
- associated with moder humus forms.
- common on nitrogen-rich soils.
- persists or may increase in abundance in pioneer seral stage.
- not found in SBSmh and mw.



Smilacina racemosa – false Solomon's-seal

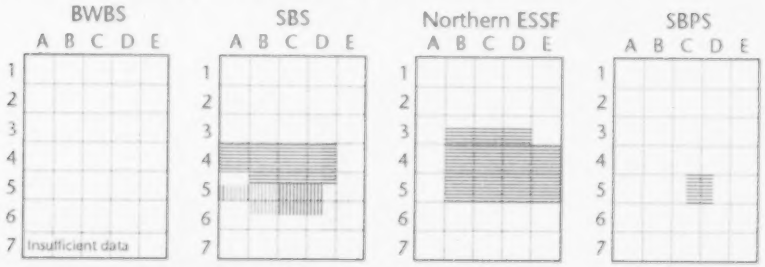


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- may increase in pioneer seral stage.

Smilacina stellata – star-flowered false Solomon's-seal

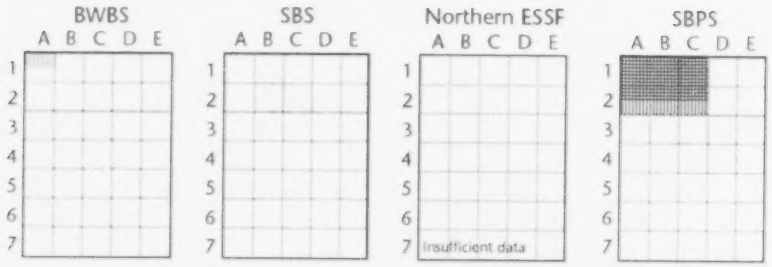


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to light-demanding.
- associated with moder humus forms.
- persists in pioneer seral stage.
- often abundant in deciduous, mature seral stage in all zones.

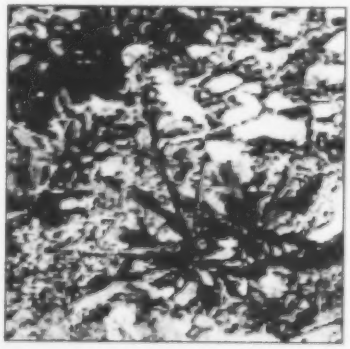
Solidago spathulata – spike-like goldenrod



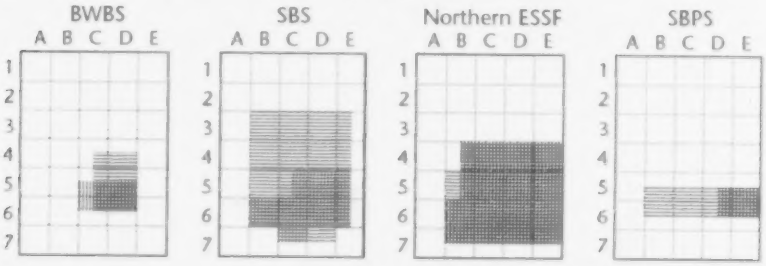
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- increases in abundance after disturbance.



Streptopus amplexifolius – clasping twistedstalk

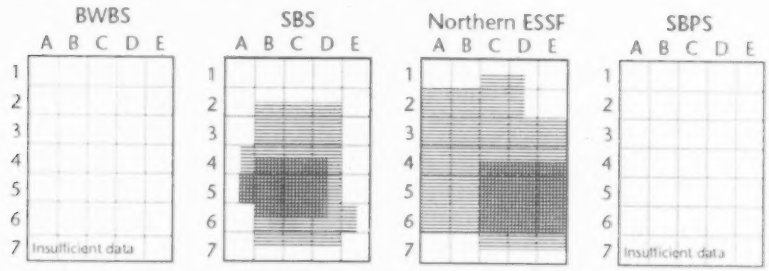


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer seral stage, to areas with seepage.

Streptopus roseus – rosy twistedstalk

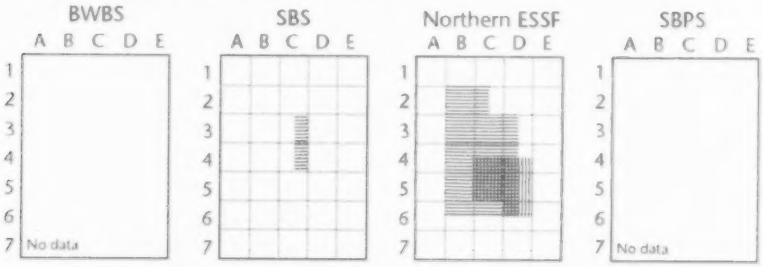

BWBS
A B C D E
1 2 3 4 5 6 7
Insufficient data
SBS
A B C D E
1 2 3 4 5 6 7
Northern ESSF
A B C D E
1 2 3 4 5 6 7
SBPS
A B C D E
1 2 3 4 5 6 7
Insufficient data

BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stage.
- uncommon in SBSdk, SBSdw, and SBPSmk.
- not found in SBPSxc and dc.

Streptopus streptopoides – small twistedstalk

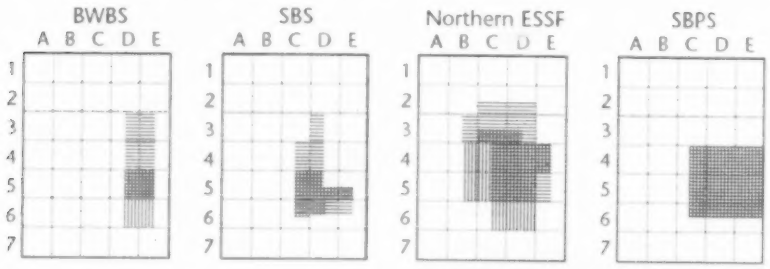


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- commonly found on mor humus forms.
- characteristic of areas with heavy snowfall.
- rare in ESSFwk, wc3, and the southern half of SBSwk1.

Thalictrum occidentale – western meadowrue

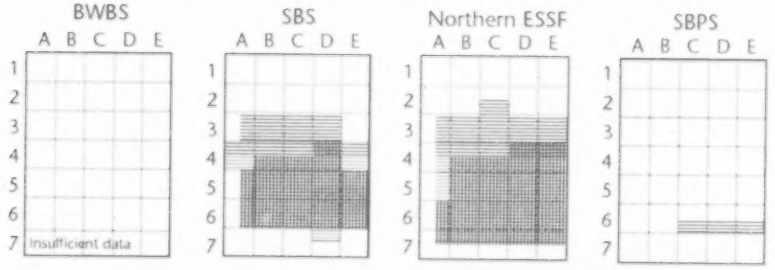


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with moder humus forms.
- persists in pioneer seral stage.
- increases in abundance and edatopic grid location in deciduous, young and mature seral stages.

Tiarella trifoliata – three-leaved foamflower

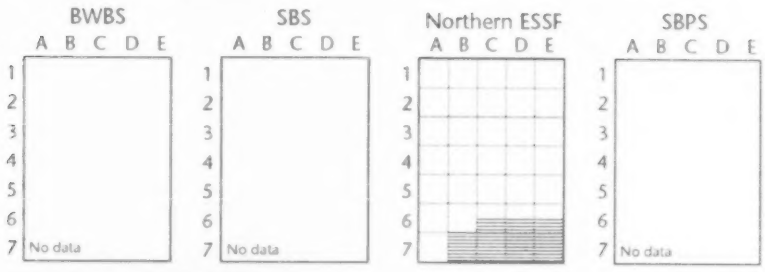


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

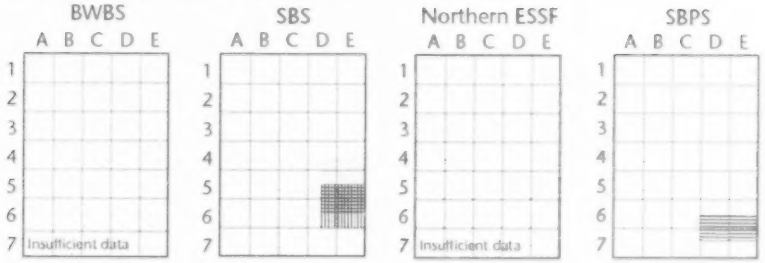
- includes var. *trifoliata* and var. *unifoliata* (one-leaved).
- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer seral stage.
- uncommon in SBPSmk.

Trollius laxus – globeflower



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Urtica dioica – stinging nettle

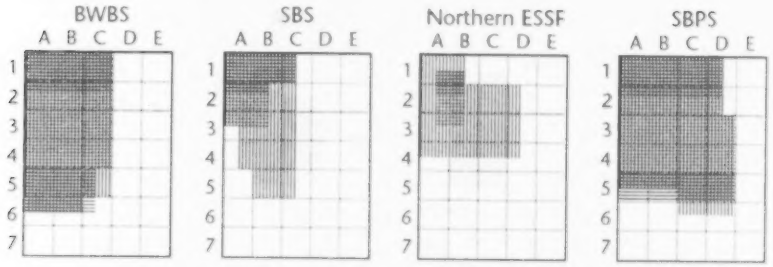


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- associated with moder humus forms.
- indicator of high nitrogen levels.
- characteristic of continually disturbed sites.
- increases in abundance in pioneer and young seral stages.

Vaccinium caespitosum – dwarf blueberry

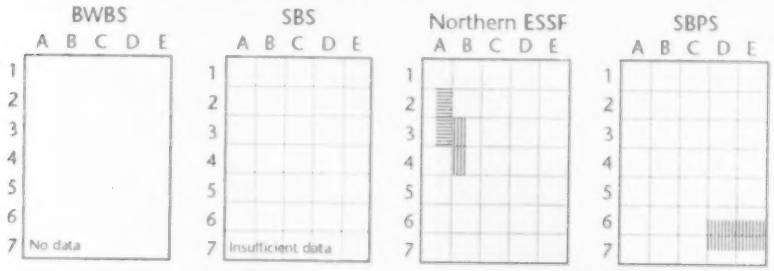


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer and young seral stages.

Vaccinium scoparium – grouseberry

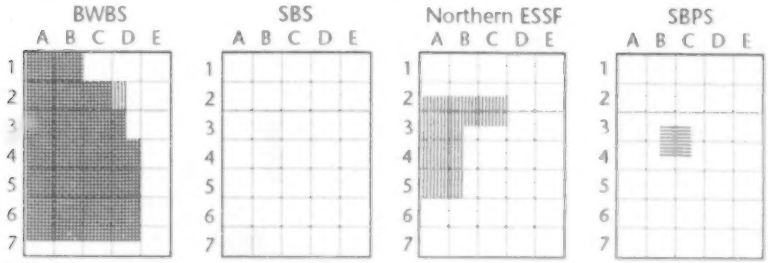


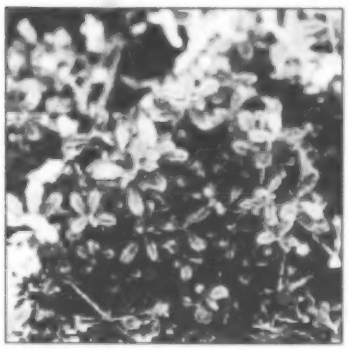
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stage.
- not found in ESSFwc3 and wk2; rare in ESSFwk1.
- in SBPS in the transition to MSxv or xk.

Vaccinium vitis-idaea – lingonberry



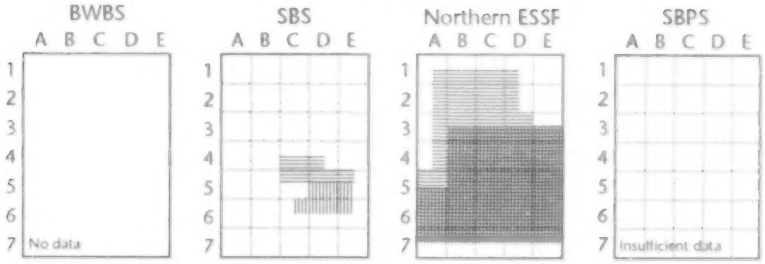


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- restricted to isolated occurances in SBPSdc and mk.

Valeriana sitchensis – Sitka valerian

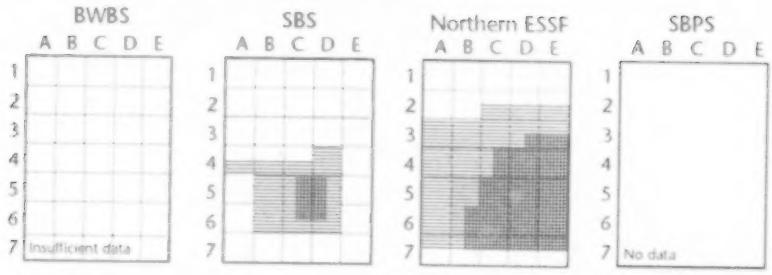


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists or increases in abundance in pioneer seral stage.
- rare at lower elevations.
- not found in SBSmc3, mh, mk2, and mw; rare in SBSmm and wk1.

Veratrum viride – Indian hellebore

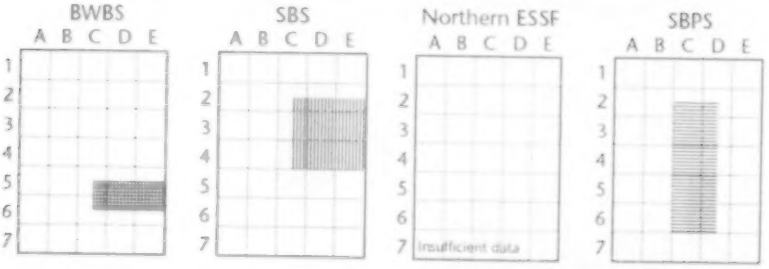


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- in SBS is associated with cold air ponding.
- persists in abundance in pioneer seral stage.
- more common at higher elevations.

Vicia americana – American vetch

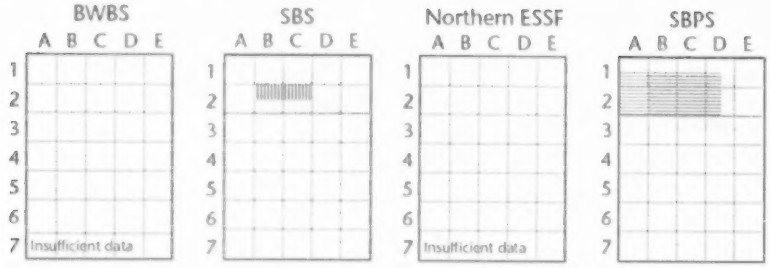


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stands.
- increases in abundance in deciduous and mixed, young and mature seral stages, especially in BWBS.

Viola adunca – early blue violet

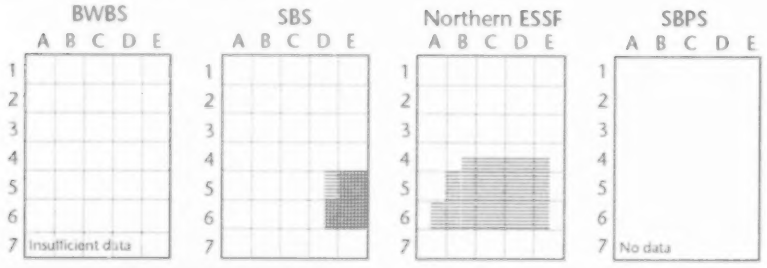


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to light-demanding.
- persists or increases in pioneer seral stage.

Viola glabella – stream violet

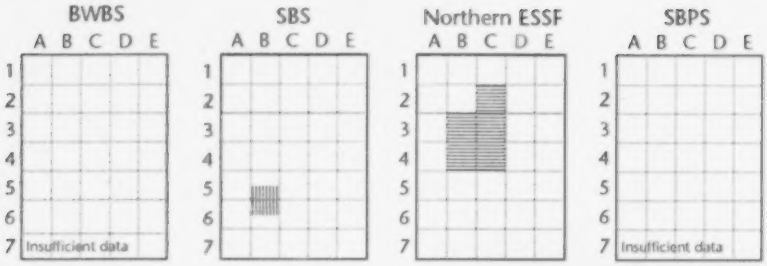


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to light-demanding.
- common on nitrogen-rich soils.
- persists in pioneer seral stage.

Viola orbiculata – round-leaved violet

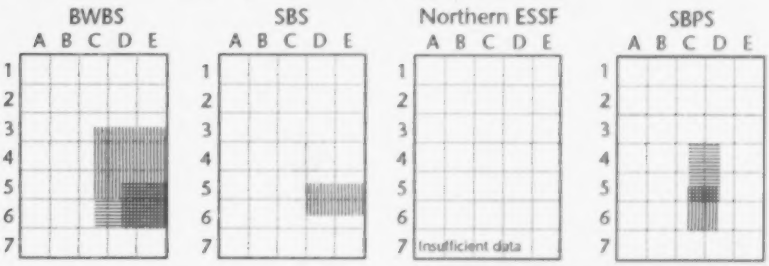


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- may decrease or persist in pioneer seral stage.

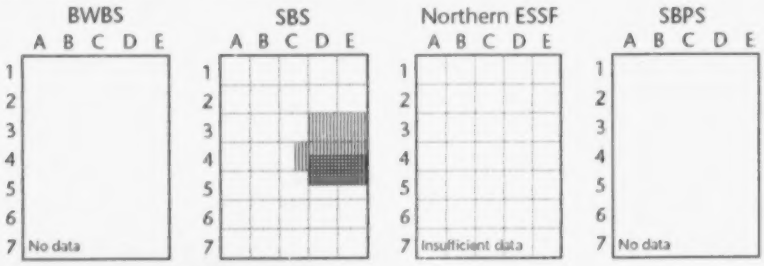
Viola renifolia – kidney-leaved violet

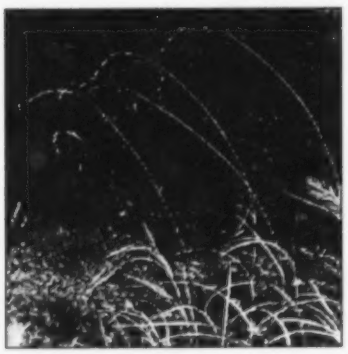


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Grasses and Sedges

Bromus vulgaris – Columbia brome



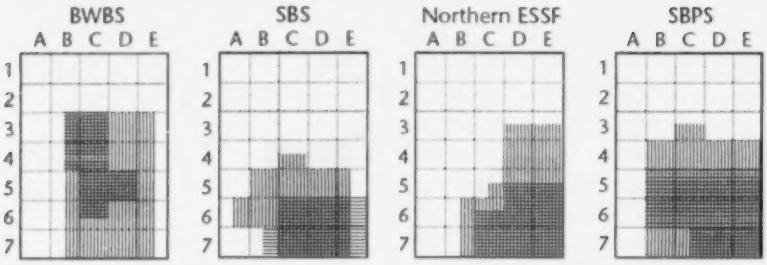


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- increases in abundance in deciduous and mixedwood, young and mature seral forests; edatopic grid range expands to wetter sites.

Calamagrostis canadensis – bluejoint reedgrass

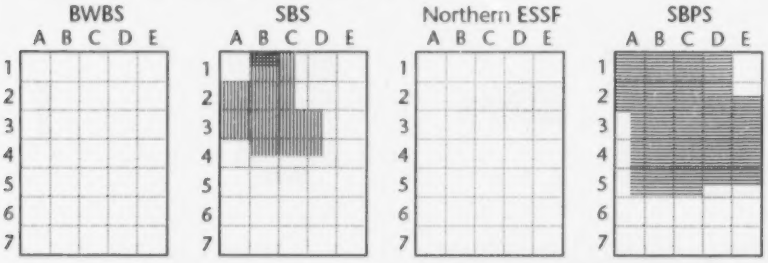


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- extremely winter-hardy and tolerates low soil temperatures.
- very tolerant of flooding and saturated soils.
- good drought tolerance.
- shade-tolerant to shade-intolerant.
- increased abundance and increased range on edatopic grid in pioneer and young seral stages, especially where mineral soil has been exposed.

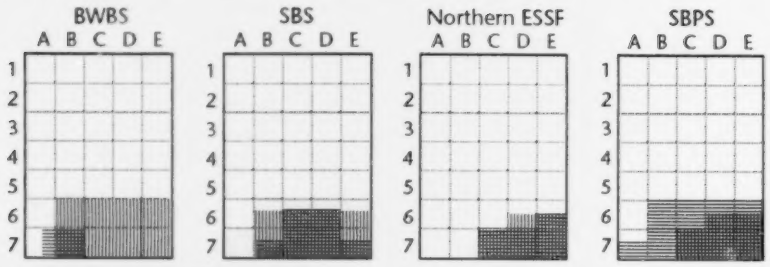
Calamagrostis rubescens – pinegrass



Indicator Values and Species Notes

- can tolerate moderate winter temperatures and is fairly tolerant of frost.
- sites often low in nitrogen if heavy pinegrass exists.
- drought-tolerant and tolerant of high air temperatures.
- shade-tolerant to very shade-tolerant.
- persists or may increase in abundance in pioneer seral stage.
- rare in SBSmc3, mh, mw, and SBPSmc; uncommon in SBSmc2 and BWBSdk1.

Carex disperma – soft-leaved sedge

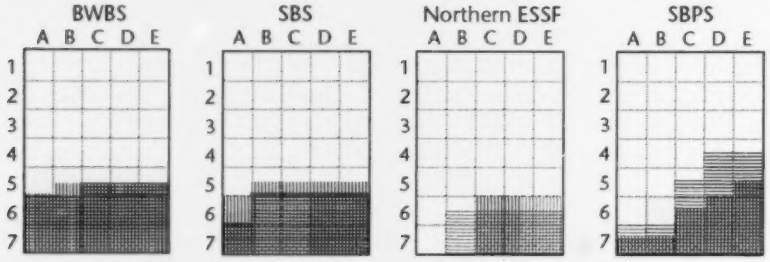


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- increases after disturbance, especially where mineral soil has been exposed.

Carex spp. – sedges

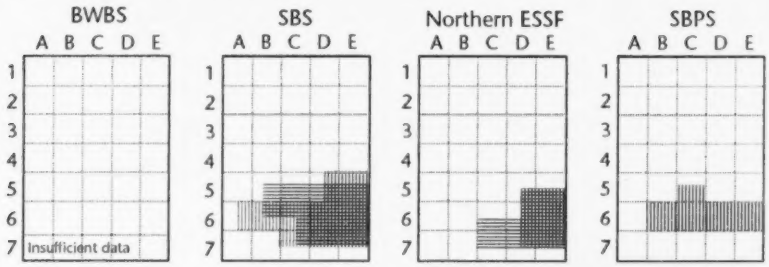


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- includes *C. rossii*, *C. richardsonii*, *C. deflexa*, and *C. siccata*.
- photo is of *C. disperma*.

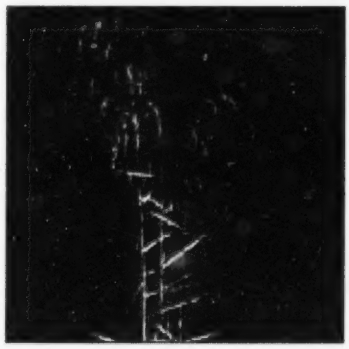
Cinna latifolia – nodding wood-reed



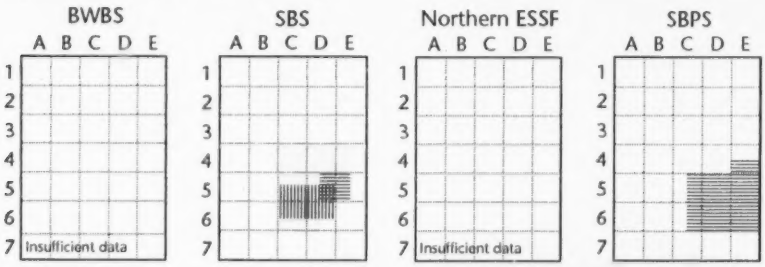
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- commonly found on moder humus forms.
- increases in abundance in pioneer and young seral stages, particularly on wetter sites.
- persists in deciduous, mature seral forests.



Elymus glaucus – blue wildrye

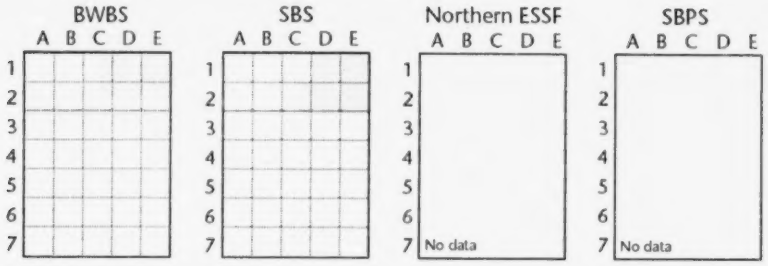


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to very shade-tolerant.
- commonly found on moder humus forms.
- persists in pioneer seral stage and deciduous, young and mature seral forests.

Elymus trachycaulus – slender wheatgrass

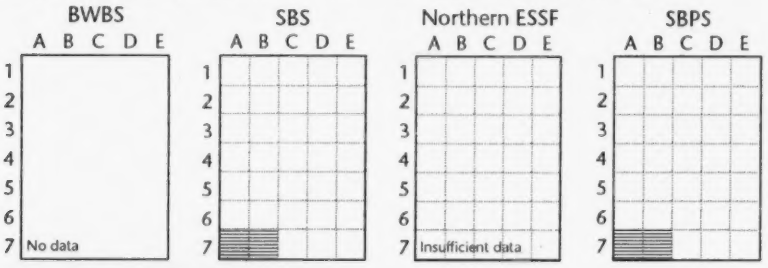


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- species of open grasslands and shrub-steppes.

Eriophorum angustifolium – narrow-leaved cotton-grass

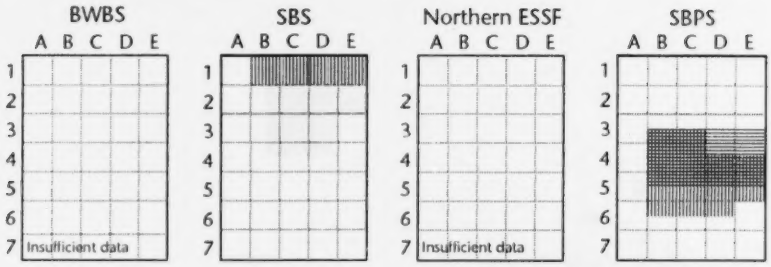


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- characteristic of nutrient-poor wetlands.

Festuca occidentalis – western fescue

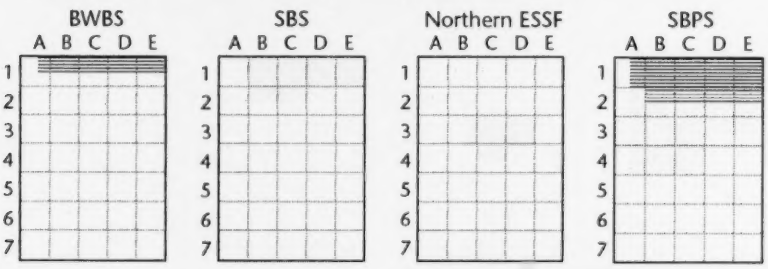


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

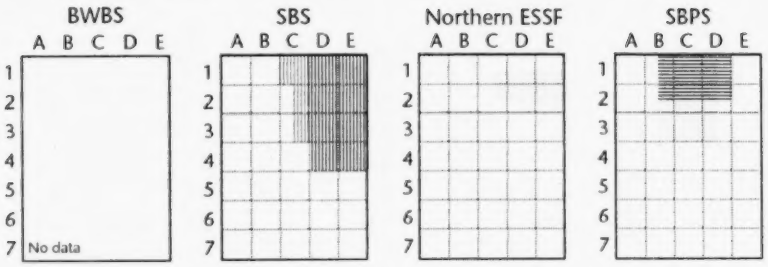
- shade-tolerant to shade-intolerant.
- increased abundance in pioneer and young seral forests.

Festuca saximontana – Rocky Mountain fescue



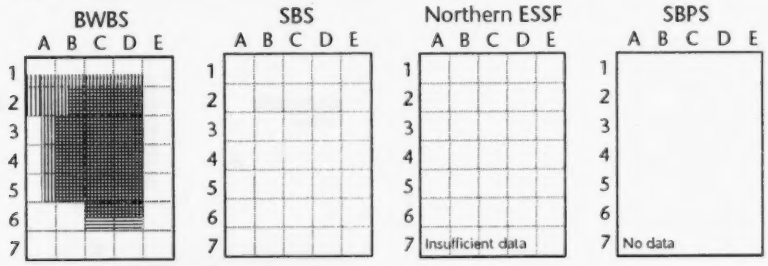
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

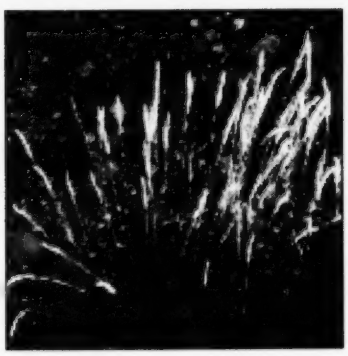
Koeleria macrantha – junegrass



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Leymus innovatus – fuzzy-spiked wildrye



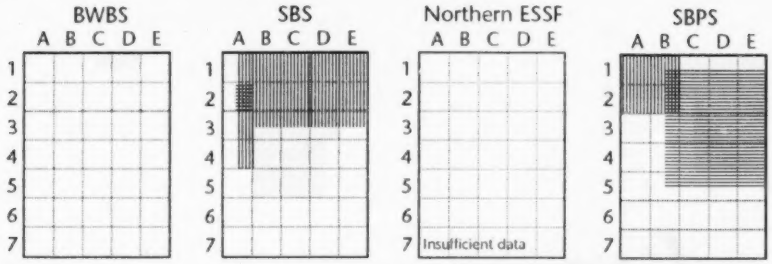


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- was *Elymus innovatus*.
- shade-intolerant to moderately shade-tolerant.
- persists or increases in abundance in pioneer seral stage, especially where mineral soil has been exposed.

Oryzopsis asperifolia – rough-leaved ricegrass

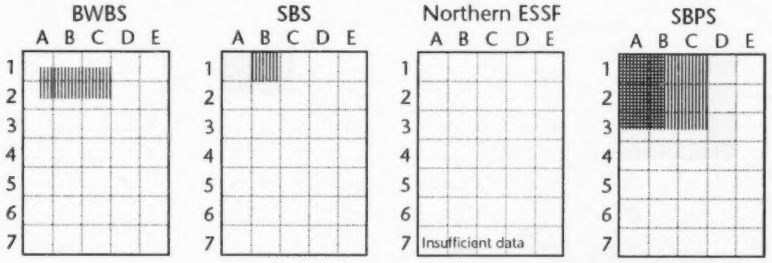


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

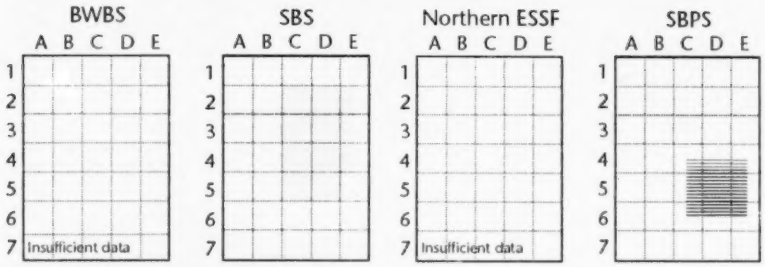
- persists in pioneer seral stage.

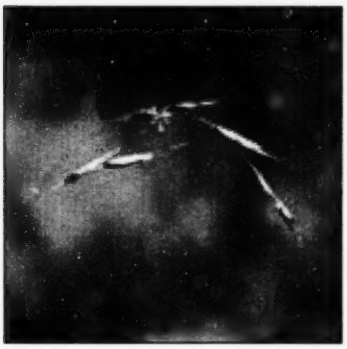
Oryzopsis pungens – short-awned ricegrass



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Schizachne purpurascens – false melic


BWBS
A B C D E
1 2 3 4 5 6 7
Insufficient data
SBS
A B C D E
1 2 3 4 5 6 7
Northern ESSF
A B C D E
1 2 3 4 5 6 7
Insufficient data
SBPS
A B C D E
1 2 3 4 5 6 7

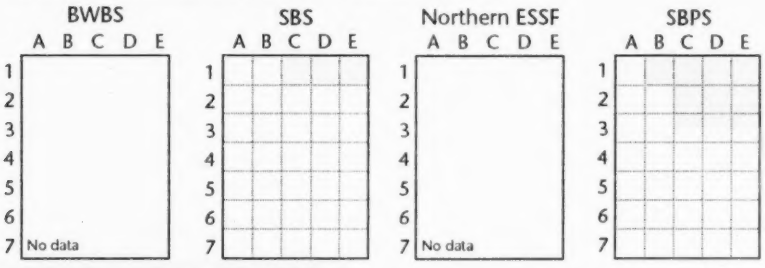


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant.
- often abundant in aspen stands.

Stipa richardsonii – spreading needlegrass

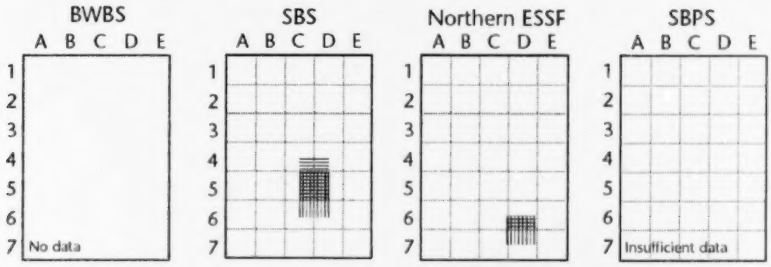


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- commonly found in grassy forest openings and open forests in SBPSxc.

Trisetum cernuum – nodding trisetum

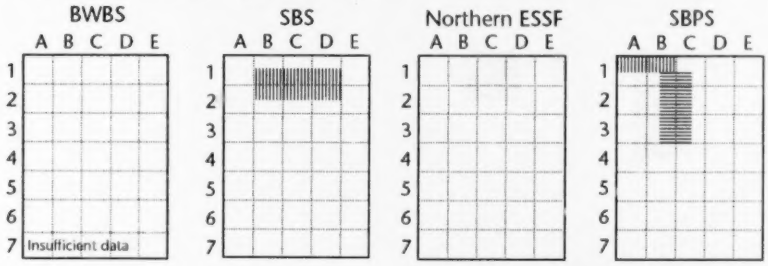


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- persists in pioneer seral stage.

Trisetum spicatum – spike trisetum

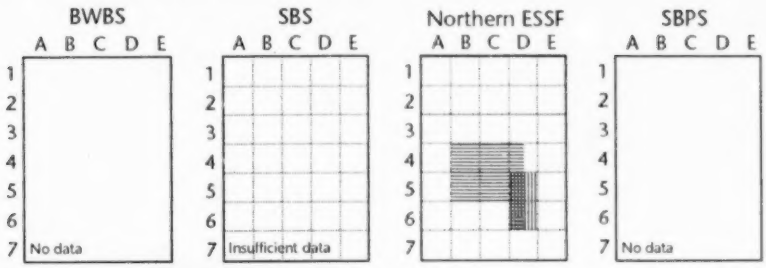


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to light-demanding.
- commonly found in openings and open forests.

Vahlodea atropurpurea – mountain hairgrass



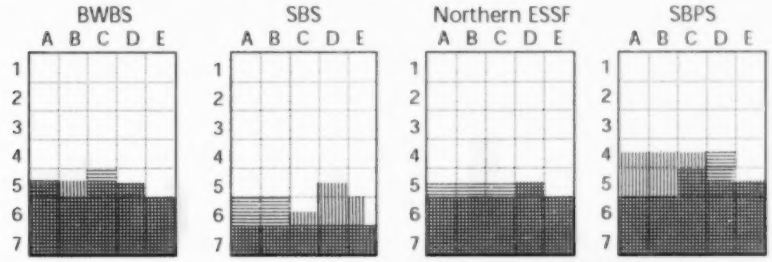
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- occurs in areas of heavy snowfall.

Mosses, Liverworts, and Lichens

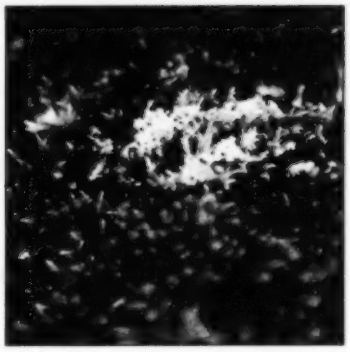
Aulacomnium palustre - glow moss



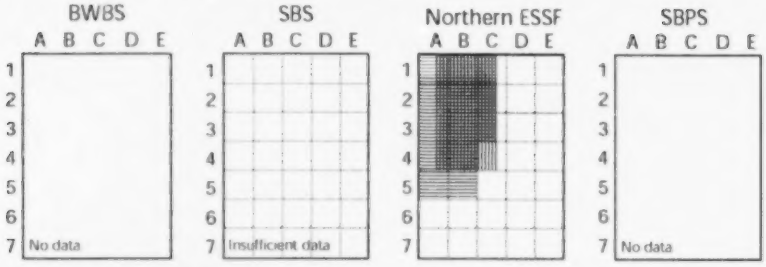
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

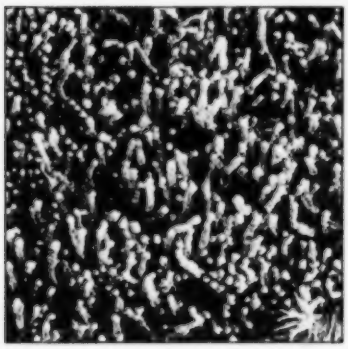
Indicator Values and Species Notes

- shade-intolerant.
- may indicate a frost-prone site; on mesic sites it indicates cold air ponding.
- persists in pioneer seral stage.



Barbilophozia floerkei - mountain leafy liverwort



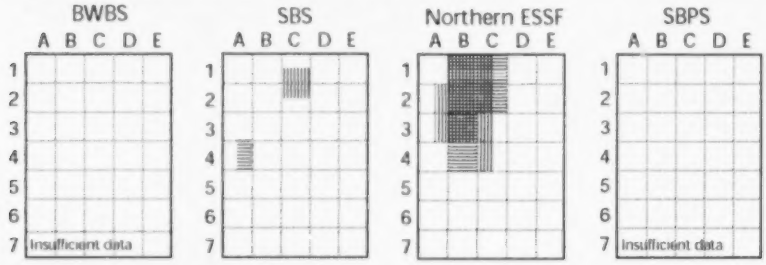


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

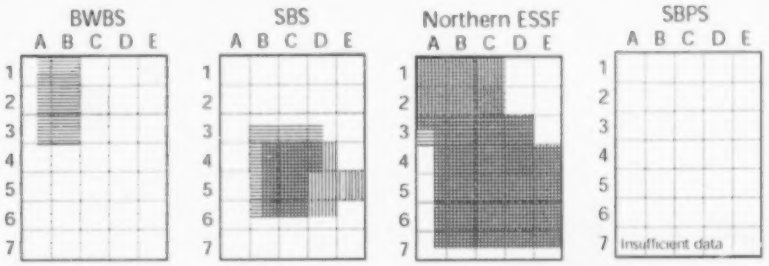
- shade-tolerant.
- considered a subalpine species.

Barbilophozia hatcheri - Hatcher's fan wort



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

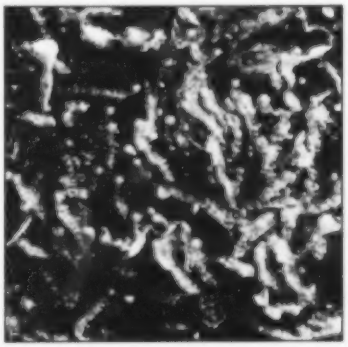
Barbilophozia lycopodioides - common leafy liverwort



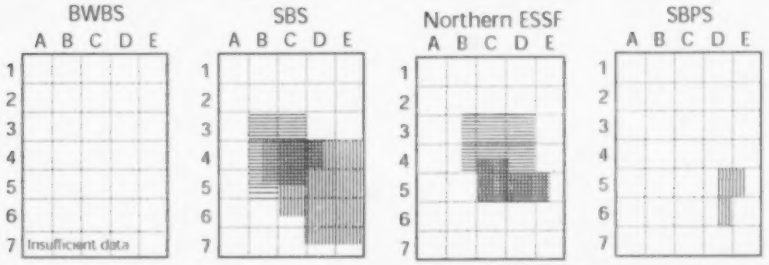
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- decreases in abundance in pioneer seral stage.

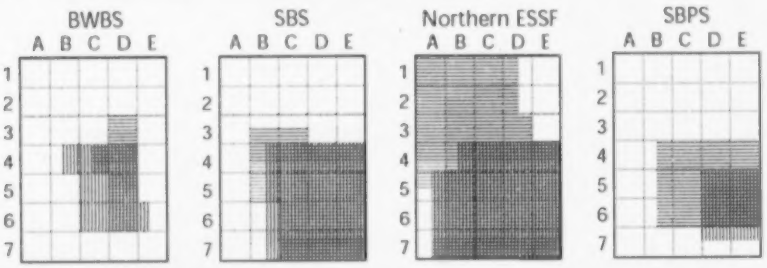


Brachythecium hylotapetum - woodsy ragged moss



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Brachythecium spp. - ragged mosses

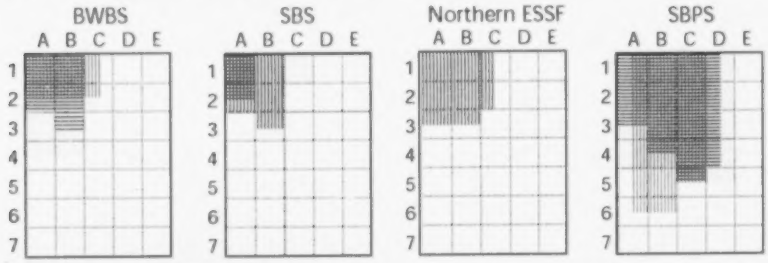


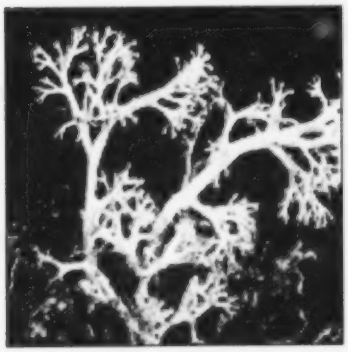
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- photo is of *B. hylotapteum*.

Cladina arbuscula - green reindeer lichen



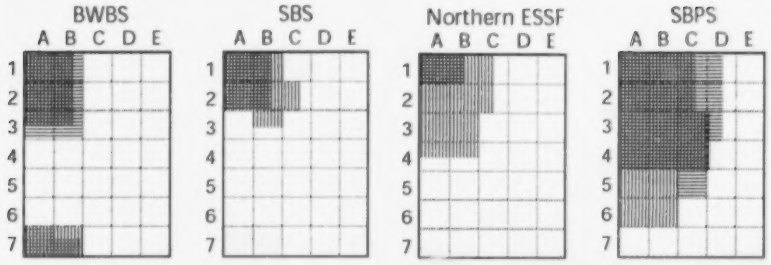


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- was *C. mitis*.
- in old-growth stands replaced by mosses, except on drier sites.
- decreases in abundance in pioneer and young seral forests.

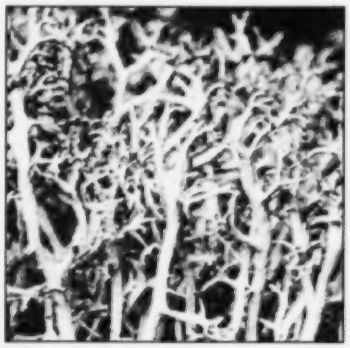
Cladina rangiferina - grey reindeer lichen



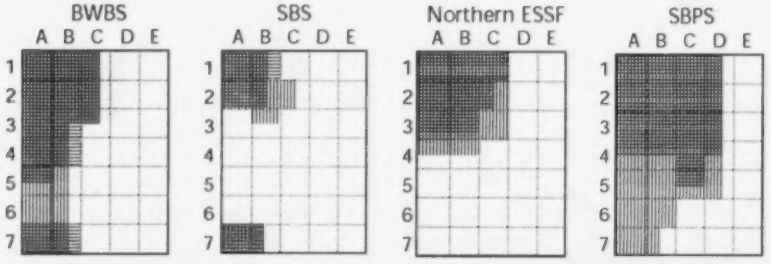
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- associated with thin mor humus forms.
- sparse in areas with heavy snowpacks.
- decreases in abundance in old-growth stands where it is replaced by mosses, except on drier sites.



Cladina spp. - reindeer lichens

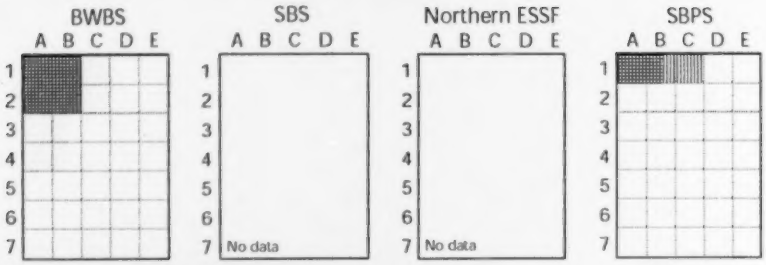


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to shade-intolerant.
- associated with mor humus forms.
- in old-growth stands replaced by mosses, except on drier sites.
- photo is of *C. rangiferina*.

Cladonia gracilis - black foot cladonia

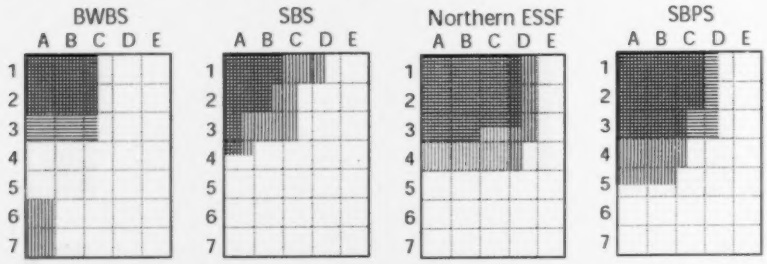


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- associated with thin mor humus forms.
- increases in abundance in young seral stage after fire.

Cladonia spp. - pixie-cup lichens

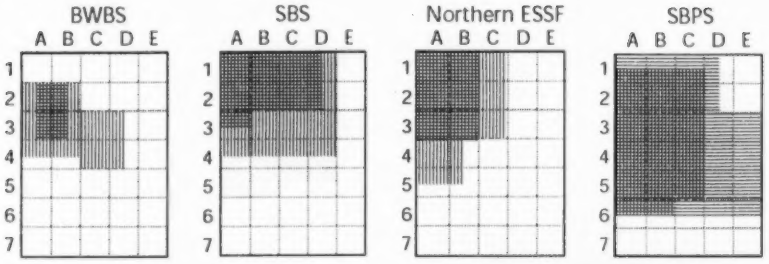


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

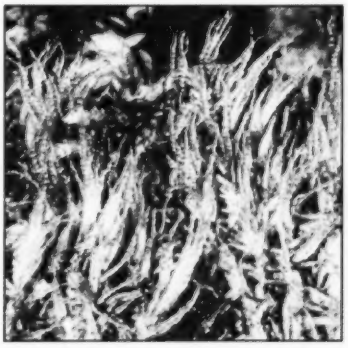
Indicator Values and Species Notes

- often increases in abundance in pioneer seral stage.
- occurs on most grid locations on rotting wood.
- photo is of *C. gracilis*.

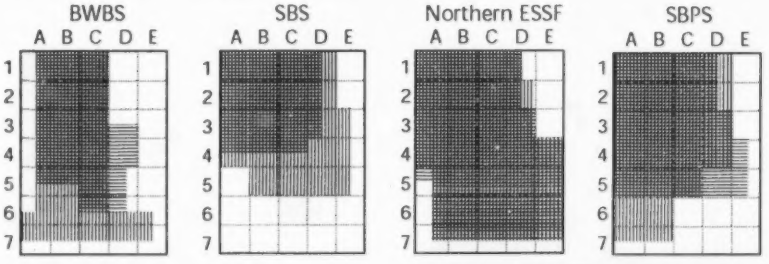
Dicranum polysetum - wavy-leaved moss



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk



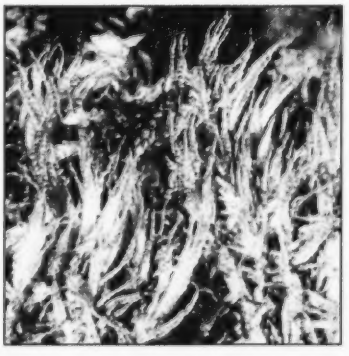
Dicranum spp. - broom mosses



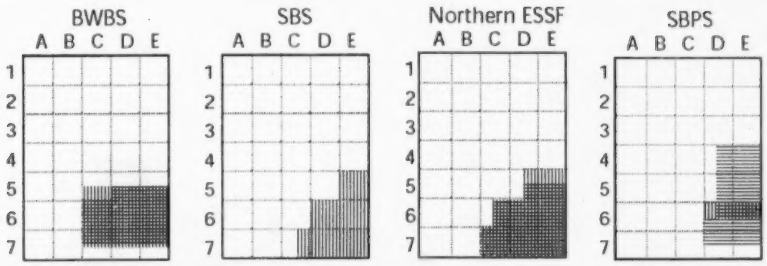
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

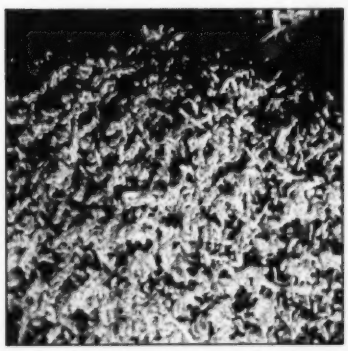
Indicator Values and Species Notes

- photo is of *D. polysetum*.



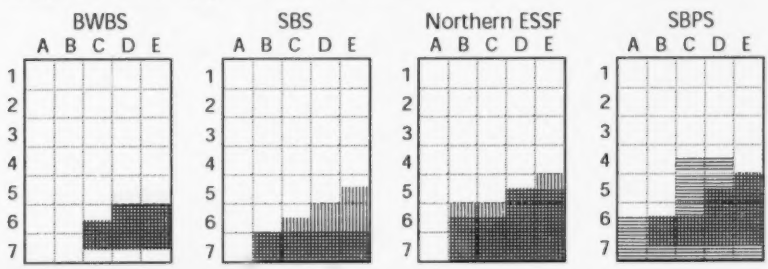
Drepanocladus uncinatus - sickle moss

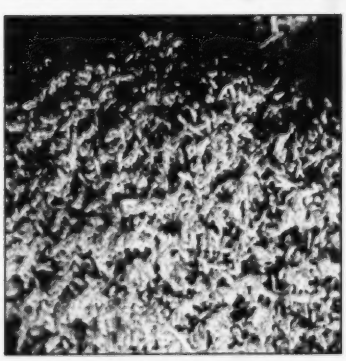




BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Drepanocladus spp. - hook mosses



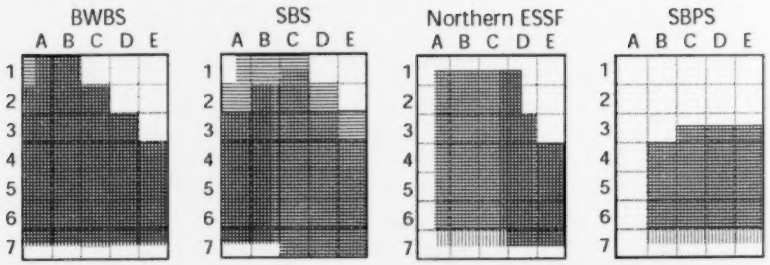


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- photo is of *D. uncinatus*.

Hylocomium splendens - step moss

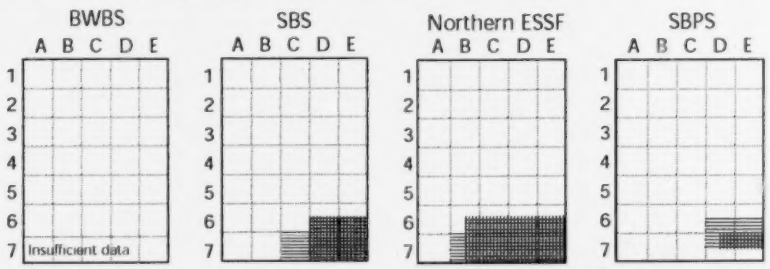


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- decreases in abundance in pioneer seral stage.

Marchantia polymorpha - green-tongue liverwort

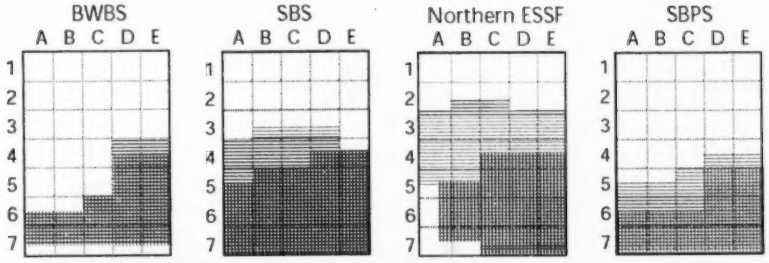


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.
- persists and may increase in pioneer seral stage after heavy disturbance or burning.
- most commonly found in microdepressions.

Mnium spp. - leafy mosses

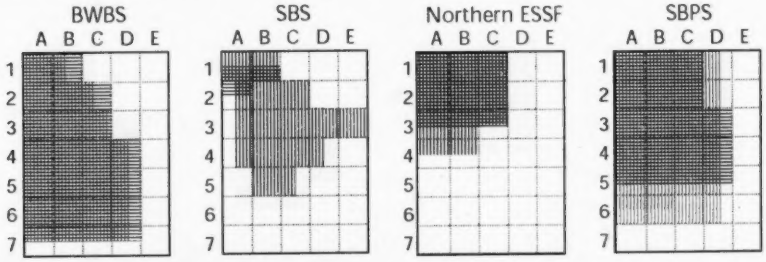


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- includes *Plagiomnium* spp. and *Rhizomnium* spp. as well.

Peltigera aphthosa - freckle pelt lichen

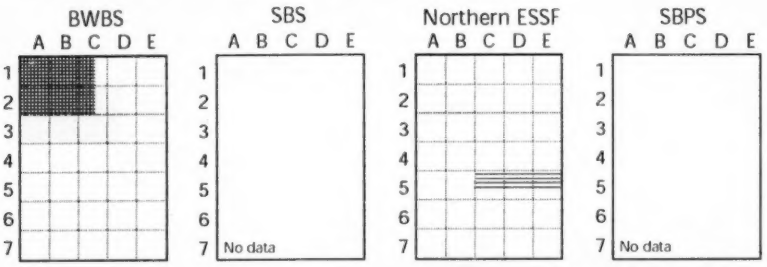


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in deciduous and mixedwood, young and mature seral forests.

Peltigera canina - dog pelt lichen

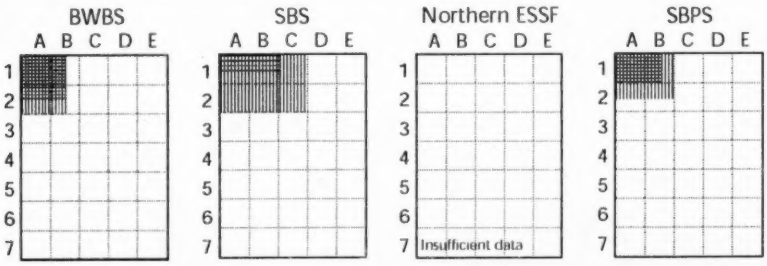


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

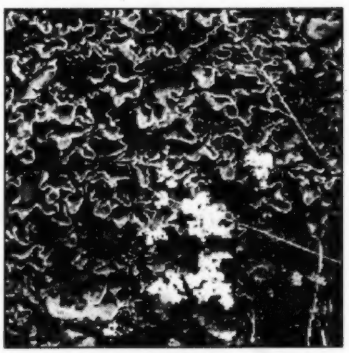
Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in deciduous, young and mature seral forests.

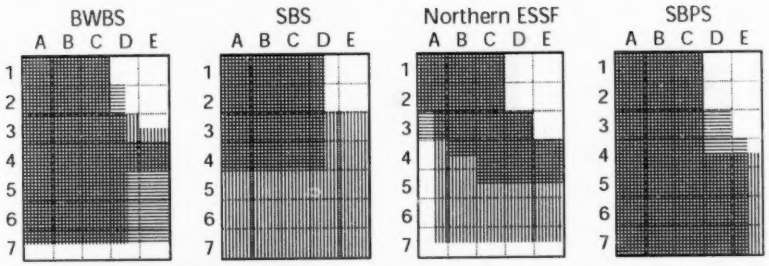
Peltigera malacea - apple pelt lichen

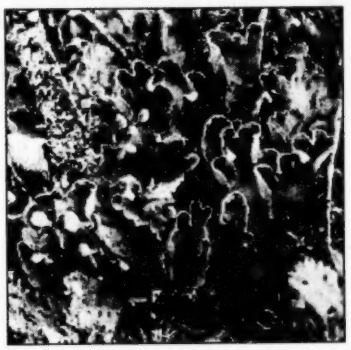


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk



Peltigera spp. - pelt lichens



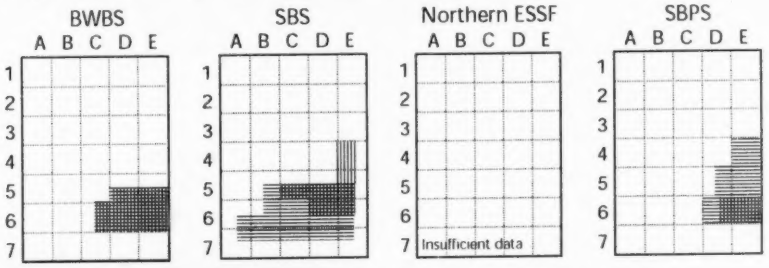


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- photo is of *P. aphthosa*.

Plagiomnium medium - common leafy moss

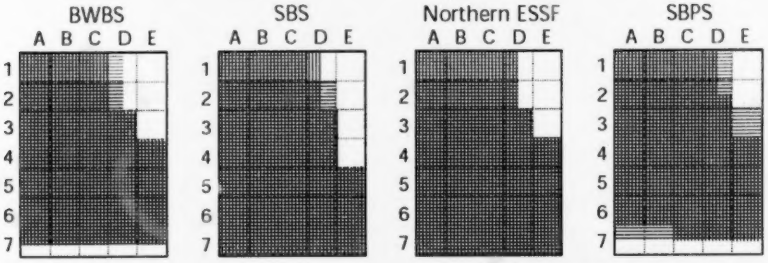


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- was *Mnium medium*.

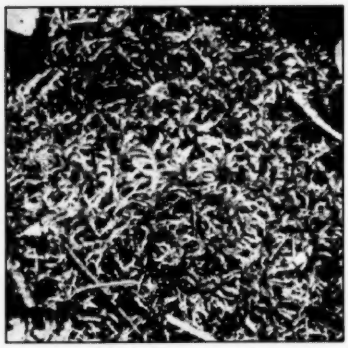
Pleurozium schreberi - red-stemmed feathermoss



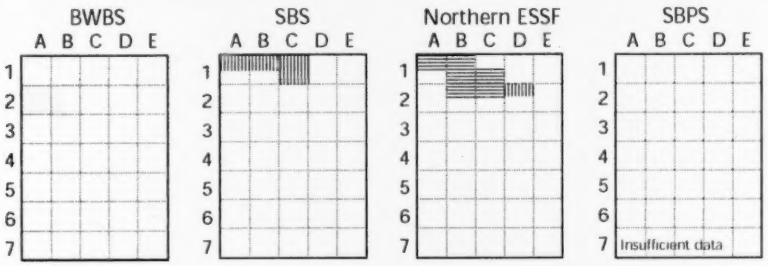
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer and young seral stages.



Pohlia nutans - copper-wire moss

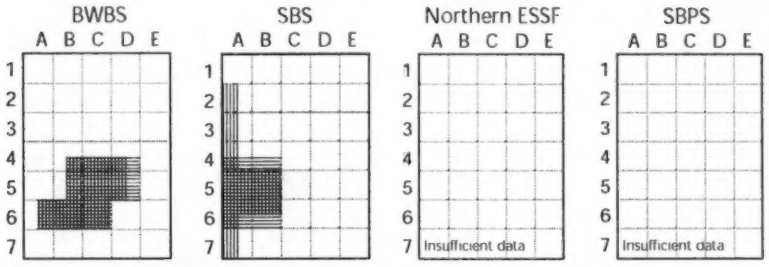


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- most abundant on soil after disturbance.
- persists in deciduous, mature seral forests.

Polytrichum commune - common haircap moss

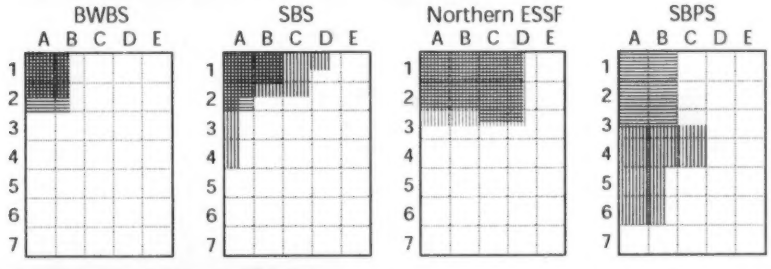

BWBS
A B C D E
1 2 3 4 5 6 7
SBS
A B C D E
1 2 3 4 5 6 7
Northern ESSF
A B C D E
1 2 3 4 5 6 7
Insufficient data
SBPS
A B C D E
1 2 3 4 5 6 7
Insufficient data

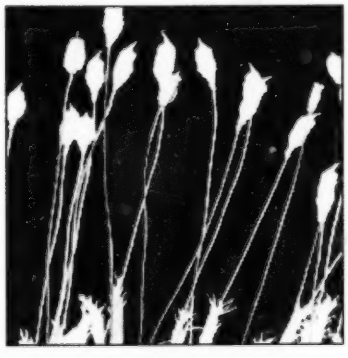
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- increases in abundance after disturbance, especially where mineral soil has been exposed.
- persists in deciduous, young and mature seral forests.

Polytrichum juniperinum - juniper haircap moss



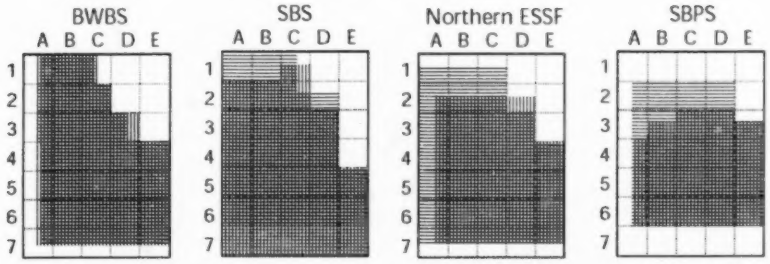


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- may indicate a frost-prone site.
- common on exposed mineral soil.
- characteristic of fire-disturbed sites.
- shade-tolerant to shade-intolerant.
- increases in abundance and edatopic range in heavily disturbed pioneer seral stage.
- persists in deciduous, young and mature seral forests.

Ptilium crista-castrensis - knight's plume

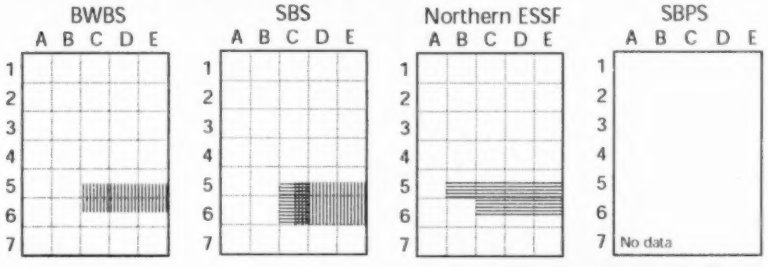


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant.
- decreases in abundance in pioneer seral stage.
- persists in mixedwood and deciduous, young and mature forests.

Rhizomnium glabrescens - large leafy moss

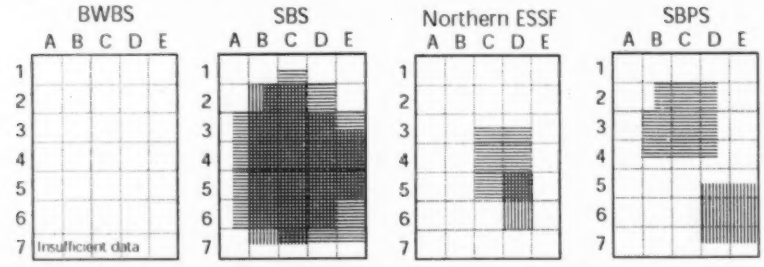


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- very shade-tolerant.
- decreases in abundance in pioneer seral stage.

Rhytidiadelphus triquetrus - electrified cat's-tail moss

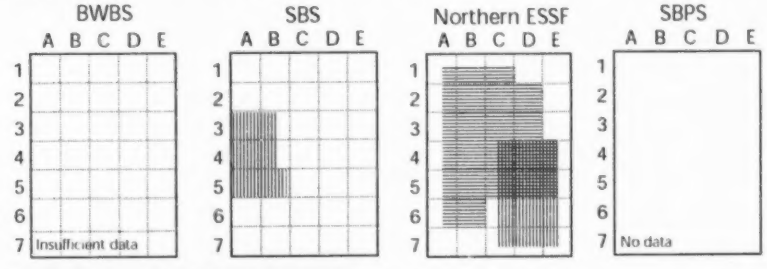


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- decreases in abundance in pioneer seral stage.
- persists in deciduous, mature seral forests.

Rhytidiopsis robusta - pipecleaner moss

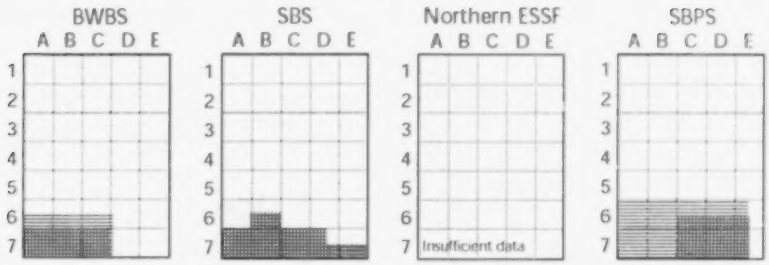


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately to very shade-tolerant.

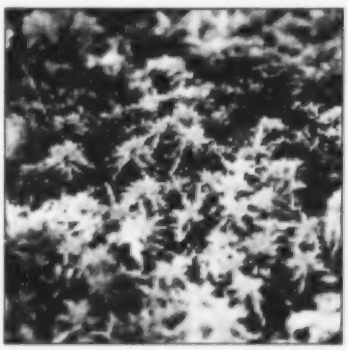
Sphagnum capillifolium - common red sphagnum



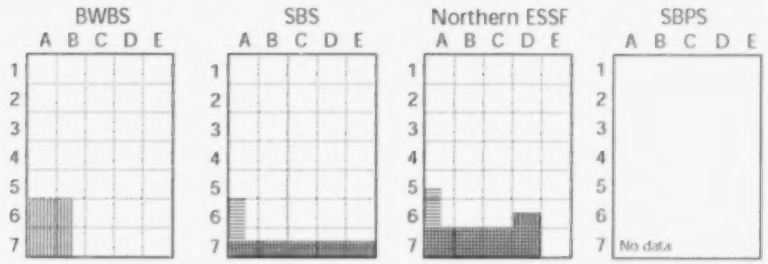
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- associated with a high watertable.



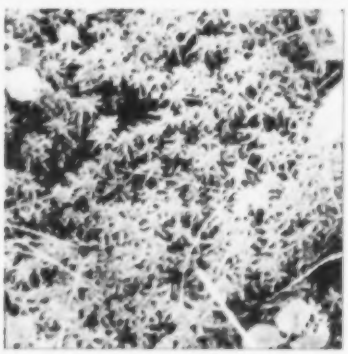
Sphagnum girgensohnii - common green sphagnum



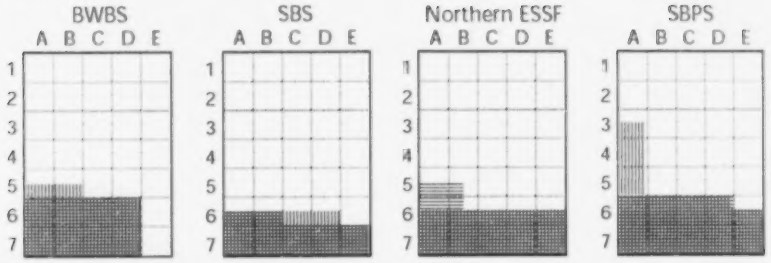
BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

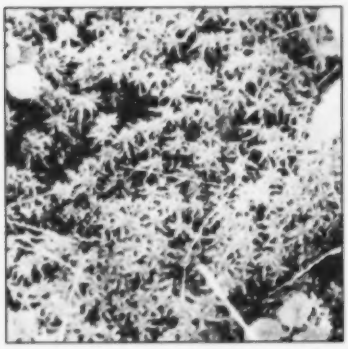
Indicator Values and Species Notes

- shade-tolerant.



Sphagnum spp. - peat mosses



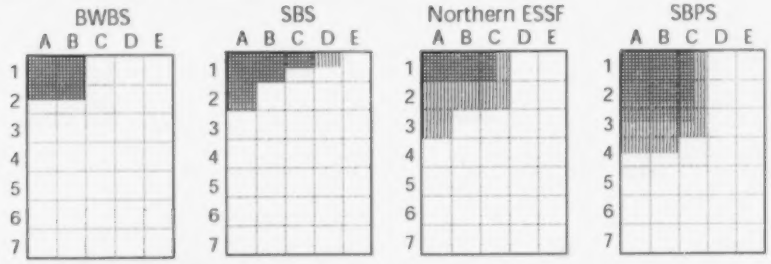


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- moderately shade-tolerant to shade-intolerant.
- on moisture regime 5 and drier it often indicates black spruce sites with cold (fine-textured) soils.
- photo is of *S. girgensohnii*.

Stereocaulon spp. - coral lichens

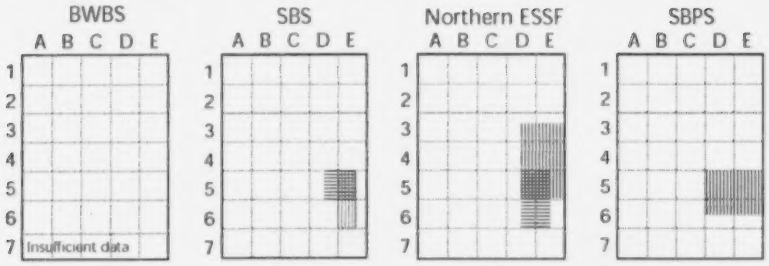


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-intolerant.

Timmia austriaca - false-polytrichum

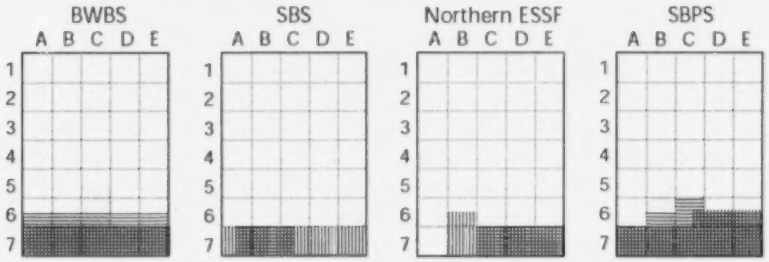


BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- shade-tolerant to shade-intolerant.
- persists in pioneer seral stage.

Tomenthypnum nitens - golden fuzzy fen moss



BWBS, SBS, ESSF	SBPS
Subzone x or d	x or d
Subzone m	mc
Subzone w or v	mk

Indicator Values and Species Notes

- commonly found on calcium-rich sites.

REFERENCES

Banner, A., W. Mackenzie, S. Haeussler, S. Thomson, J. Pojar, and R. Trowbridge. 1993. A field guide to site identification and interpretation for the Prince Rupert Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 26.

Beaudry, L., E. Oneil, C. Whittaker, R. Evans, W. Kessler, and D. Lousier. 1997. Ecology and management of Douglas-fir at the northern limits of its range. Identification and interpretation of Douglas-fir ecosystems in the SBSwk3, dw3 and mk1. For. Prog., Nat. Resour. and Environ. Studies, Univ. Northern B.C., Prince George, B.C.

British Columbia Ministry of Forests, Cariboo Forest Region. 1982 (revised January 1989). A field guide for the identification and interpretation of ecosystems of the Cariboo Forest Region (EP 822.04). Author's draft. B.C. Min. For. Research Section, Williams Lake, B.C.

Delesalle, B. 1998. Understanding wetlands: a wetland handbook for British Columbia's interior. Ducks Unlimited Canada, Kamloops, B.C.

DeLong, C. 1988. A field guide for identification and interpretation of seral aspen ecosystems of the BWBSc1, Prince George Forest Region. B.C. Min. For. Prince George For. Reg., Prince George, B.C.

DeLong, C. and M.J. Jull. 1996. Draft field guide insert for site identification and interpretation for the Rocky Mountain trench. B.C. Min. For. Prince George For. Reg., Prince George, B.C.

DeLong, C., A. MacKinnon, and L. Jang. 1990. A field guide for identification and interpretation of ecosystems of the northeast portion of the Prince George Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 22.

DeLong, C., D. Tanner, and M.J. Jull. 1993. A field guide for site identification and interpretation for the southwest portion of the Prince George Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 24.

———. 1994. A field guide for site identification and interpretation for the northern Rockies portion of the Prince George Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 29.

—— . 1996. Draft field guide insert for site identification and interpretation for the southeast portion of the Prince George Forest Region. B.C. Min. For. Res. Br., Victoria, B.C.

Douglas, G.W., G.B. Straley, and D. Meidinger. 1989. The vascular plants of British Columbia. Part 1. Gymnosperms and Dicotyledons (Aceraceae through Cucurbitaceae). B.C. Min. For. Res. Br. and Royal B.C. Museum, Victoria, B.C. Spec. Rep. Ser. No. 1.

——— . 1990. The vascular plants of British Columbia. Part 2. Dicotyledons (Diapensiaceae through Portulacaceae). B.C. Min. For. Res. Br. and Royal B.C. Museum, Victoria, B.C. Spec. Rep. Ser. No. 2.

——— . 1991. The vascular plants of British Columbia. Part 3. Dicotyledons (Primulacaea through Zygophyllaceae) and Pteridophytes. B.C. Min. For. Res. Br. and Royal B.C. Museum, Victoria, B.C. Spec. Rep. Ser. No. 3.

——— . 1994. The vascular plants of British Columbia. Part 4. Monocotyledons. B.C. Min. For. Res. Br. and Royal B.C. Museum, Victoria, B.C. Spec. Rep. Ser. No. 4.

Haeussler, S., D. Coates, and J. Mather. 1990. Autecology of common plants in British Columbia: a literature review. For. Can. and B.C. Min. For., Victoria, B.C. FRDA Rep. 158.

Johnson, D., L. Kershaw, A. MacKinnon, and J. Pojar. 1995. Plants of the western boreal forest and aspen parkland. Can. For. Serv., Nat. Resour. Can., Canada–Alberta Partnership Agreement in Forestry. Lone Pine Publishing, Edmonton, Alta.

Klinka, K., V.J. Krajina, A. Ceska, and A.M. Scagel. 1989. Indicator plants of coastal British Columbia. Univ. B.C. Press, Vancouver, B.C.

Lavender, D.P., R. Parish, C.M. Johnson, G. Montgomery, A. Vyse, R.A. Willis, and D. Winston. 1990. Regenerating British Columbia's forests. For. Can. and B.C. Min. For., Victoria, B.C.

Lloyd, D., K. Angove, G. Hope, and C. Thompson. 1990. A guide to site identification and interpretation for the Kamloops Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 23.

Luttmerding, H.A., D.A. Demarchi, E.C. Lea, D.V. Meidinger, and T. Vold. 1990. Describing ecosystems in the field. B.C. Min. Environ., Lands and Parks, Victoria, B.C. MOE Manual 11.

MacKinnon, A., C. DeLong, and D. Meidinger. 1990. A field guide for identification and interpretation of ecosystems of the northwest portion of the Prince George Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 21.

MacKinnon, A., J. Pojar, and R. Coupé. 1992. Plants of northern British Columbia. B.C. Min. For. and For. Can. Lone Pine Publishing, Edmonton, Alta.

Parish, R., R. Coupé, and D. Lloyd. 1996. Plants of southern interior British Columbia. B.C. Min. For. and Lone Pine Publishing, Vancouver, B.C.

Pojar, J., R. Love., D. Meidinger, and R. Scagel. 1982. Some common plants of the sub-boreal-spruce zone. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 6.

Porter, G.L. 1990. Willow species of disturbed sites in the Sub-Boreal Spruce Zone in north-central British Columbia. For. Can. and B.C. Min. For. Res. Br., Victoria, B.C.

Province of British Columbia. 1998. Field manual for describing terrestrial ecosystems. B.C. Min. Environ., Lands and Parks, Resour. Inv. Br., and B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 25.

Ringius, G.S. and R.A. Sims. 1997. Indicator plant species in Canadian forests. Can. For. Serv. Nat. Resour. Can., Ottawa, Ont.

Roberts, A. 1983. A guide to the willows of the Cariboo Forest Region. B.C. Min. For. Cariboo For. Region, Williams Lake, B.C. Unpubl. rep.

Steen, O.A. and R.A. Coupé. 1997. A field guide to forest site identification and interpretation for the Cariboo Forest Region. B.C. Min. For. Res. Br., Victoria, B.C. Land Manage. Handb. No. 39.

Steen, O.A., R.J. Stathers, and R.A. Coupé. 1990. Identification and management of summer frost-prone sites in the Cariboo Forest Region. For. Can. and B.C. Min. For., Victoria, B.C. FRDA Rep. No. 157.

Vitt, D.H., J.E. Marsh, and R.B. Bovey. 1988. Mosses, lichens and ferns of northwest North America. Lone Pine Publishing, Edmonton, Alta.

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